Prof. W. A. Goodell
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ANATOMICAL RELATIONS

OF

LESIONS OF THE HEART AND THE KIDNEYS

IN

BRIGHT'S DISEASE.

FROM THE STUDY OF THREE HUNDRED AUTOPSIES.

BY

HENRY F. FORMAD, B.M., M.D.,

LECTURER ON EXPERIMENTAL PATHOLOGY AND DEMONSTRATOR OF MORBID ANATOMY IN THE UNIVERSITY OF PENNSYLVANIA, CORONER'S PHYSICIAN OF PHILADELPHIA, PATHOLOGIST TO THE PHILADELPHIA HOSPITAL, PRESIDENT OF THE PATHOLOGICAL SOCIETY OF PHILADELPHIA, ETC.

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THE ANATOMICAL RELATIONS OF LESIONS OF THE HEART AND THE KIDNEYS IN BRIGHT'S DISEASE.

From the Study of Three Hundred Autopsies.

By HENRY F. FORMAD, B.M., M.D.

In the present paper I give an account of my studies from three hundred autopsy records of Bright's disease.

I will limit myself chiefly to the consideration of hypertrophy and fatty metamorphosis of the heart as occurring in this disease. There are a number of other points of interest that may be gleaned from these records, but upon which I will not dwell now beyond stating general results.

Some of the points gained from the analysis of my tables give results which are at variance with those obtained from the collective studies of cases of Bright's disease made by some authorities. The reason for this may be looked for, however, in the classification of the material, the direction of study, or the purpose for which any given class of cases had been collected, or sometimes selected.

My studies are purely morphological, being made at the autopsy table and in the laboratory upon consecutive cases of Bright's disease as they occurred during a given space of time. They are unbiased; not being a clinician, I have no theories or hypotheses to follow out, and refrain from making any suggestions regarding the mechanism of the production of cardiac and renal changes, and for the present I will not go into the details of the etiological relations of these affections.

Of the three hundred autopsies upon cases of typical Bright's disease, one hundred and fifty were studied by myself post-mortem, and most of these also microscopically; in fact, the specimens from

every case where the naked-eye appearance was not conclusive, were thus examined. The source of these one hundred and fifty autopsies is from the coroner's material of the city of Philadelphia, through the courtesy of Coroner S. H. Ashbridge, for whom, in conjunction with Dr. R. R. Stewart, I conduct all the autopsies of cases of sudden deaths or those unattended by physicians. Another source is private autopsies, which I frequently make at the request of physicians. All these cases occurred in a total of eleven hundred and seventy-two consecutive autopsies of adults, and were executed between September 1, 1888, and September 1, 1889. It will be seen from the tabulated results given below, that in general these cases are not unlike the hospital cases, which are not included in this series.

The other one hundred and fifty autopsies were taken from the post-mortem records of the Philadelphia Hospital (the large almshouse hospital of this city). I abstracted them with the aid of my assistant in this work, J. F. Spelman. They are all cases of typical Bright's disease, mostly diagnosticated as such or studied during life, being selected from a total of thirteen hundred autopsies from the hospital records stated, covering a period of five years. Many of them had been executed under my supervision and that of Dr. E. O. Shakespeare, while the rest were clinically studied and executed by the members of the hospital staff, which included Drs. Tyson, Bruen, Osler, Musser, Wilson, Henry, Curtin, and Walker.

These hospital records, although not sufficiently detailed regarding the weight of the heart and kidneys, are accurate and will serve our purpose. Each series of cases is separate and distinct, no cases being duplicated.

Each of the two series of autopsies is recorded in detail, separately in the second part of this paper.

In the preparation or collection of these records, Bright's disease was taken as the starting-point or basis. All cases of kidney affections other than Bright's disease, or those in which the disease did not present itself as fully established at the autopsy, and a few ill-recorded cases, were excluded.

In the hospital and private cases the clinical diagnosis was paid attention to: an advantage which was not enjoyed in the coroner's cases, yet, even in the latter, sometimes the most truthful of histories

were obtained under oath upon the witness stand, especially regarding habits of the deceased.

In the series of my own autopsies, which were made with the special purpose of presenting the results in these studies, the weight of the heart and of the kidney were taken carefully in nearly every instance as stated in the records, likewise the condition of the *body*, while its weight was approximately estimated and which, I believe, in most cases to be an almost true estimate, being correct within the limits of a few pounds. Naturally the ability to do this requires practice.

The estimation of the weight of the body is all-important as regards the question of the normal size of either heart or kidneys, because while a heart weighing twelve ounces may be called hypertrophied in an individual of one hundred and twenty pounds bodily weight, it may be considered of normal weight in an individual weighing two hundred pounds. My figures of the approximate weight of the body are satisfactory for this purpose, because a mistake within a few pounds (of the bodily weight) could be no definite mathematical factor; moreover, there are other more serious obstacles to the precision in calculating proportions, such as the condition of nutrition of the body and the contents of the alimentary canal.

In all statistics relating to the weight of the heart found in the literature of Bright's disease, these points, the importance of which is readily seen, have not been taken into consideration by any one in this class of studies as far as I know. The same is true of the relation of the weight of the kidneys to the bodily weight in Bright's disease.

From the given weight of an organ a satisfactory estimate of its size can be made. I found the weight of organs to be a much safer criterion and more satisfactory than measurements, the latter being made by the different observers according to various scales, methods, and ideas, which are often quite unintelligible and useless. The heart muscle especially varies in thickness according to the degree of contraction, the quantity of clotted blood, and the time which has elapsed since death. The plain statement of an experienced observer as to the condition of the cavities, the walls, and the approximate weight of the heart is more valuable than all the measurements that an inexperienced and over-zealous one will present with his figures.

From the present considerations I exclude amyloid disease of the

kidney; although belonging to the picture of Bright's disease, there is a marked and nearly constant apparent absence of hypertrophy of the heart. This is true as far as the small size or weight of the heart is concerned at time of death, but if it be considered that we meet with it usually in scrofulous subjects, who invariably have congenitally small hearts, the conclusion that hypertrophy of the heart is rare in this affection will be found to be an error.

The small heart of the scrofulous is subject to hypertrophy as well as the heart of the normal individual; but when the former hypertrophies to double its original size, it may not appear any larger in volume than the latter, and when, in reality, enormously hypertrophied it may barely reach the size of what we ordinarily would call a slight hypertrophy. I made some studies upon the weight of the organs, in relation to the size of the body, in the scrofulous, according to the methods of Beneke and Thoma for establishing such weights, and paid especial attention to hypertrophy in amyloid disease. I shall present these observations on another occasion.

Cases of congenitally small kidneys and of senile atrophy were carefully excluded in Series A., these autopsies having been executed all by myself or the organs personally studied.

I also excluded from the present records cyanotic induration of the kidneys; which, as is well known, is usually the consequence of cardiac disease, especially valvular. I may state here that my researches have fully convinced me that cyanotic induration of the kidney never terminates in Bright's disease, which is quite contrary to the opinion of some observers. I have reference to the long-standing passive hyperæmia of the kidneys which results in cyanotic induration of these organs, with enlargement often to double their normal size, the kidneys being hard and firm and bluish-red in color.

The alcoholic cyanosis of the kidney, another affection analogous morphologically to the last named, but different only in the shape of the organs (the "pig-backed" kidney, which I first described and demonstrated before this Association (see Vol. I. of *Transactions*), I also excluded). Alcoholic cyanosis is often associated with cardiac hypertrophy, but rarely with valvular disease. It is this affection which is often mistaken on the post-mortem table for, and recorded as, acute Bright's disease. I doubt not that this lesion (the alcoholic kidney) represents the inflammatory form of Bright's disease of

Grainger Stewart, which he records as being without albuminuria, without dropsy, and with large fatty livers, and which has crept now and then into the records of various observers, old and recent, as cases of acute Bright's disease. I also believe some of the subdivisions of the "pluralists" on Bright's disease, such as the "chronic hemorrhagic nephritis without dropsy of Weigert," to be identical with my alcoholic cyanosis.

The late stage of the alcoholic cyanosis (the œdematous form), as met with upon the post-mortem table, in chronic drunkards who had been deprived for some time of alcoholic beverages, resembling much the large white kidney macroscopically, is another source of error; this lesion I have seldom seen to give rise to left-sided hypertrophy, though general cardiac hypertrophy is common.[1]

Amyloid kidney also closely resembles and is often mistaken for the large white and the fatty and contracted kidney.

Such mistakes and the omission (to be referred to later) of some authors to separate the fatty and secondarily contracted kidney from the primarily contracted or granular kidney, cripple the statistics on the subject of hypertrophy of the heart quite decidedly.

In recording my cases I have adopted the rather crude and old-fashioned nomenclature for the various forms of Bright's disease, but one which I am sure will be readily comprehended; whereas, did I use the proper technical terms, misunderstanding on the part of the reader, as to the exact form of Bright's disease meant, would be sometimes liable to occur.[2]

The classification adopted is as follows:

I. The *acute parenchymatous nephritis* (*syn.* catarrhal, tubular, desquamative, croupous, scarlatinal, febrile, glomerulo-nephritis, acute degeneration of the kidney, acute exudative nephritis, acute diffuse nephritis) I will term *acute Bright's disease.*

[1] It is remarkable how infrequent Bright's disease is in drunkards. I found that inflammatory kidney lesions generally occurred more frequently in the temperate than in the intemperate. Is it the constant excess of venous blood in alcoholic cyanosis of the kidneys that makes inflammatory changes in the latter less frequent, as it does in the right chambers of the heart?

[2] I am not considering here the histology of Bright's disease, hence it is unnecessary to review the anatomical and histological features of the various forms of this affection; but stating the array of synonyms may prevent misunderstanding.

II. The *early stage of the chronic parenchymatous* nephritis (*syn.* same as above qualified by "*chronic*") I will invariably call *large white kidney*, which well indicates the stage of the disease.

III. The *late or contracting stage of the chronic parenchymatous nephritis* (*syn.* diffuse nephritis, secondarily contracted kidney, obstructive nephritis, fatty kidney, chronic diffuse nephritis with exudation) I will designate as *fatty and contracted kidney.*

IV. The *chronic interstitial nephritis* or primary contracted kidney (*syn.* granular, cirrhotic, and gouty kidney, renal cirrhosis, atrophic, lithæmic and toxæmic nephritis, and chronic diffuse nephritis without exudation, etc.) I will call *red granular kidney*, which is an old and comprehensive name for this affection.

Among the most serious sins of nomenclature we find that the term diffuse nephritis is indifferently applied to both the fatty and contracted and the red granular kidney.

The reasons for a separation of these two affections as distinct forms of Bright's disease are quite obvious, and I put myself strongly on the side of those who make it, viz., the dualists.[1]

For diagnostic purposes and for prognosis it is also quite essential that the *fatty or secondarily contracted kidney* should be differentiated from the *red granular or primarily contracted kidney.* Clinically it is, I believe, well established, that in the former the onset of the disease may nearly always be traced to acute nephritis, or at least to the large white kidney; that it is liable to occur at all ages; that transitions from scarlatinal nephritis in the young are traced to the large white kidney of the adult, and to the fatty and contracted kidney of late life, while rarely to the very old; that dropsy is very common in the

[1] It is interesting to observe that the father of Bright's disease, also Grainger Stewart, Dickinson, Johnson, and the English school are strictly "dualists," being reinforced by the great original German workers Virchow, Traube, Senator, and Bartels; Charcot and Cornil in France, and in this country perhaps strongest by Tyson. The French are mostly "unicists" (*i. e.*, advocates of the eventual transition of the three parenchymatous forms of nephritis into the red granular kidney), which is, however, also in accordance with the views of such prominent Germans as Frerichs, Rosenstein, Cohnheim, and Bamberger, and it appears also with the views of some of the New York authorities on the subject.

Of late years "pluralists" have arisen, chiefly among the Germans, including Wagner, Weigert, and even Senator, who are inclined to ascribe every form of Bright's disease to different and independent morbid processes and causes, and place several complications of the morbus Brightii in the field as independent subdivisions of the disease.

earlier stages: that polyuria is more rare, and albumin is seldom missed; in fact, the duration of the disease is very uncertain, a fatal termination being liable to occur at any time.

On the other hand, in the *red granular kidney*, which is common in gouty and rheumatic individuals, and is so often traced to disease of the genito-urinary tract, the initial stage is unknown, there being nothing to show that an acute inflammation of the kidney ever existed. It rarely occurs in the young,[1] being almost peculiar to middle or old age: it may be of lifelong duration: dropsy and presence of albumin are rare, and polyuria is prominent.

Polyuria in the fatty and contracted kidney, if it occurs at all, is late; the urine may be rich in albumin, whereas, in the ever-present copious flow in the red granular form little or no albumin is present, as is well known. This, I believe to be an important diagnostic point.

In my laboratory classes the urine examined is often from well-known clinical cases, and in many instances have I traced the albuminous (fatty and contracted kidney) and non-albuminous polyuria (red granular kidney) to the post-mortem table.

I may be permitted to introduce the following table relating to the more important anatomical and microscopical differences between the two affections referred to, because their separation is to a certain extent a point of issue in hypertrophy of the heart, and fatty metamorphosis of the cardiac muscle.

Fatty and Contracted Kidney.	*Red Granular Kidney.*
Contraction of kidney secondary. Size seldom below normal.	Contraction of kidney primary. Size below normal, often reduced to one-half, or even one-fourth.
Capsule adherent only in places, seldom thickened. Surface lobulated, often smooth; color pale, mottled or yellow.	Capsule adherent, thickened. Surface granular, rough. Color red or grayish-red.
Cysts usually large, and seldom numerous. Pelvis rarely dilated.	Cysts usually small-sized and numerous. Pelvis often dilated.
Arterial changes rare, or not pronounced.	Arterial changes (endarteritis, or periartritis) almost invariably present.
Cortex often normal in size. Atrophy very late.	Cortex always much atrophied.

[1] Eight cases below 30 years will be found in my records. Histories of syphilis, malaria, and anæmia were conspicuous in these cases. For duration of life in Bright's disease, see special table.

Renal epithelium much swollen, desquamating freely, often in a state of fatty degeneration, but cells always visible. Compound granule cells.

Tube casts, epithelial, dark granular, and containing compound granule cells, and later fat globules.

Renal epithelium never desquamating, though it may undergo fatty degeneration (necrosis), and become diminished in size and partly lost.

Tube casts, hyaline, pale granular, and waxy, but never containing cells, epithelial or any other.

NOTE.—If the classification and the definition of Bright's disease in its various forms were undisputed and a uniform nomenclature adhered to by all, then there would be no discrepancy in statistical results such as is seen in the literature of the subject. I would earnestly urge the adoption of a uniform nomenclature for the various forms of Bright's disease and the abolition of some of the synonyms. Some of the latter are misleading and I have met with instances where pathologists and clinical teachers would designate one and the same form of Bright's disease by entirely different names (without thinking that they were identical) and also under a certain given name affections entirely different from one another. Others delight in suggesting and using new names for the various forms without giving synonyms when writing on the subject, and leaving the reader to conjecture from the description which form of the affection they really mean.

ANALYSIS OF THE CASES.

The three hundred autopsies from which I draw my conclusions (two series: A. coroner's and private cases, B. hospital cases) are, as stated, recorded in detail in the second part of this paper (Appendix). I thought it necessary and convenient to record them here, as future studies of the same by anyone may reveal points of interest at present unconsidered. Each case has a reference either to my note-book, to the autopsy records of the Philadelphia Hospital, or to those of the coroner, so that should additional information be desired it may be gained therefrom.

The large general table is a summary of all the cases recorded in this paper, and gives the duration of life, the cause of death, the condition of the body, dropsy, cystic change of the kidney, and the prominent cardiac complications, such as hypertrophy, valvular disease, fatty metamorphosis, and dilatation of the heart, as well as the arterial changes in each form of Bright's disease, stating the number of cases. The figures expressing the percentage side by side with the number of cases, facilitate comparison with other statistics.

Beside this I have compiled several special tables which give interesting data relating to hypertrophy of the heart under varying conditions: fatty metamorphosis of the cardiac walls, valvular disease

and pericarditis, and the weight of the heart and kidneys in each of these affections.

I also present tables relating to age and sex, and further some interesting figures concerning the weight of the heart in relation to the weight of the body, and finally some data relating to the distribution of Bright's disease during the various periods of life.

References will be found in the records to arterial changes and a summary of the various complications or concurrent affections of Bright's disease.

Conclusions.

From the accompanying general table the following conclusions may be made:

Hypertrophy of the Heart.[1]

Hypertrophy of the heart in Bright's disease generally, occurred in all the cases tabulated in 62 per cent., of which 34 per cent. were left-sided and 28 per cent. were general hypertrophy. Hypertrophy was absent in only 38 per cent. of all cases.

Considering the two forms of Bright's disease apart, we find that general hypertrophy coexists more frequently with parenchymatous nephritis, viz., in 29 per cent.: while hypertrophy of the left ventricle alone was met with in 26 per cent. in this form of Bright's disease. Hypertrophy of the left ventricle predominates in interstitial nephritis, showing 44 per cent. to 26 per cent. of the parenchymatous. General hypertrophy occurred in interstitial nephritis in 28 per cent.

I obtained also figures which vary somewhat in the two series of cases tabulated.

Series A. Coroner's and private cases.—Hypertrophy of heart in connection with the parenchymatous forms of nephritis, occurred in 54

[1] To secure the figures stated below regarding cardiac hypertrophy, each of the two series of cases is first considered separately, viz., by adding the total number of cases of parenchymatous and interstitial nephritis together and dividing by 150; the two results then being added and divided by two. For instance—general cardiac hypertrophy, *Coroner's and private cases:* in parenchymatous forms of nephritis, 22 cases; in interstitial nephritis, 13 cases; a total of 35 cases, which equals 23 per cent. *Hospital cases:* parenchymatous forms, 28 cases; interstitial nephritis, 22 cases; a total of 50 cases, which equals 33 per cent. By adding the two results (23 per cent. and 33 per cent.) and again dividing by two = 28 per cent. is obtained, which equals the percentage of general hypertrophy in the *total of cases.*

Analysis of 300 Cases of Bright's

Series A.

Results of Personal Observations from Coroner's and Private Autopsies.

	Parenchymatous Nephritis.								Interstitial Nephritis.		Total.	
	Acute Bright's.		Large white.		Fatty and contract'd		Total		Red granular.			
Number of cases of each form	10		44		46		100		50		150	
Average age at time of death	26 years		34 years		45 years		.....		52 years		.....	
	No.	pr. ct.	No.	pr. ct.	No.	pr. ct.	No.	pr. ct.	No.	pr. ct.	No.	pr. ct.
Cause of death, uræmia,	0		13	30	19	41	32	32	15	30	47	31
Cause of death, œdema of lungs,	0		9	20.5	2	11	14	14	13	26	27	18
Cause of death, cerebral apoplexy	0		0		6	13	6	6	8	16	14	9
Cause of death, pneumonia,	1	10	5	11.5	2	4	8	8	1	2	9	6
Cause of death, pericarditis,	0		8	18	8	15	16	16	12	24	28	18.5
Cause of death, hydropericardium	0		5	11.5	3	7	8	8	1	2	9	6
Cause of death, heart failure,	0		3	7	3	7	6	6	2	4	8	5
Cause of death, sudden.	0		2	4	3	7	5	5	8	16	13	9
Body emaciated	0		3	7	19	41	22	22	30	60	52	35
Dropsy, present,	10	100	35	80	30	65	75	75	13	26	88	59
Dropsy, absent or not stated,	0		9	20.5	16	35	25	25	37	74	62	41
Renal cysts, present,	0		11	25	20	44	31	31	20	40	51	34
Renal cysts, absent,	10	100	33	75	26	56	69	69	30	60	99	66
Hypertrophy of heart, left ventricle,	0		12	27.5	20	44	32	32	33	66	100	67
Hypertrophy of heart, general,	1	10	14	32	7	15	22	22	13	26		
Hypertrophy of heart, very slight, or absent,	9	90	18	41	19	41	46	46	4	8	50	33
Hypertrophy with valvular disease, left ventricle,	0		3	7	3	7	6	6	14	28	42	28
Hypertrophy with valvular disease, general,	0		7	16	5	11	12	12	10	20		
Hypertrophy without valvular disease, left ventricle,	0		8	18	20	44	28	28	15	30	57	38
Hypertrophy without valvular disease, general	1	10	9	20.5	2	4	12	12	2	4		
Valvular disease without hypertrophy	4	40	4	9	4	8	12	12	4	8	16	11
Heart normal	5	50	14	32	12	26	31	31	3	6	34	23
Arterial changes, present,	0		12	27.5	29	63	41	41	45	90	86	57
Arterial changes, absent,	10	100	32	73	17	37	59	59	5	10	64	43
Renal arteries involved	0		3	7	4	8	7	7	41	82	48	32
Dilatation of heart, present,	0		14	32	26	56	40	40	34	68	74	49
Dilatation of heart, absent, or very slight,	10	100	30	68	20	44	60	60	16	32	76	50
Fatty metamorphosis heart muscle, present,	0		8	18	15	33	23	23	25	50	48	32
Fatty metamorphosis heart muscle, absent, or not stated.	10	100	36	82	31	67	77	77	25	50	102	68
The same without hypertrophy	0		2	4.5	9	20	11	11	5	10	16	11

Disease (exclusive of Amyloid Disease).

Series B.

Results of the Analysis of the Autopsy Records of the Philadelphia Hospital.

Parenchymatous Nephritis.								Interstitial Nephritis.		Total.		Grand Total. (12 per cent of all deaths.)	
Acute Bright's.		Large white.		Fatty and contracted.		Total of parenchymatous.		Red granular.					
5		35		35		75		75		150		300	
31 years		39 years		46 years		.....		59 years		.....		.....	
No.	pr. ct.	No.	pr. ct.	No.	pr. ct.	No.	pr. ct.	No.	pr. ct.	No.	pr. ct.	No.	pr. ct.
0		9	26	11	31	20	27	30	40	50	33	97	32
2	40	5	14	4	11	11	15	7	9	18	12	45	15
0		0		1	3	1	1.5	5	7	6		20	6.5
2	40	2	6	3	9	7	9	6	8	13	9	22	7.5
0		1	3	2	6	3	4	4	5	7	4 5	35	11.5
0		3	9	2	6	5	7	0		5	3	14	4.5
0		2	6	5	14	7	9	4	5	11	7	19	6
0		2	6	2	6	4	5	5	7	9	6	22	7.5
0		3	9	9	26	12	16	14	19	26	17	78	26
5	100	19	54	13	37	37	49.5	22	29	59	39.5	147	49
0		16	46	22	63	38	51	53	71	91	61	153	51
0		4	11	10	29	14	19	25	33	39	26	90	30
5	100	31	89	25	71	61	81	50	67	111	74	210	70
1	20	4	11	9	26	14	17	23	31	87	58	187	62
0		15	43	13	37	28	37	22	29				
4	80	16	46	13	37	33	44	30	40	63	42	113	38
0		12	34	11	31	23	31	29	39	52	35	94	31.5
1	20	9	26	9	26	19	25	17	23	36	24	93	31
1	20	3	9	3	9	7	9	12	16	19	13	35	11.5
3	60	11	31	12	34	26	35	17	23	43	29	77	26
1	20	9	26	13	37	23	31	48	64	71	47	157	52
4	80	26	7	22	63	52	69	27	36	79	53	143	48
.....		.....		.....		.....		.....		.....		.....	
1	20	9	26	14	40	24	32	27	36	51	34	125	41.5
4	80	26	7	21	60	51	68	48	64	99	66	175	58
1	20	5	14	8	23	14	19	17	23	31	20.5	79	26
4	80	30	86	27	77	61	81	58	77	119	79	221	73.5
1	20	2	6	3	9	6	8	14	19	20	13	36	12

per cent. of the cases,[1] and in the interstitial nephritis in 92 per cent.

Series B. Hospital cases. — Hypertrophy of heart in connection with parenchymatous nephritis occurred in 56 per cent. of all cases, and in the interstitial nephritis in 60 per cent.[2]

Relation to Valvular Disease.

The relation of valvular disease to the two forms of Bright's disease (the parenchymatous and the interstitial) appears to be an indefinite one.

Valvular disease *without* hypertrophy proves to be nearly equally distributed between the parenchymatous and interstitial, occurring in the former in 12 per cent. and in the latter in 13 per cent.

In the chronic interstitial nephritis hypertrophy of the heart without valvular disease was met with in 27 per cent. of all cases, while in the parenchymatous form it was 34.5 per cent.

Hypertrophy of the heart *with valvular disease* coexisted with chronic interstitial nephritis in 42 per cent., or nearly twice as frequently as in the parenchymatous forms in which it was 23 per cent. (occurring with equal frequency in the large white, and fatty and contracted kidneys).

The *degree* of hypertrophy appears also to be influenced by valvular disease, and still more by pericarditis, as the following results will show:

	Cases.	Average weight of heart
Hypertrophy without valvular disease . .	93	14 ounces.
Hypertrophy with valvular disease . .	94	17 "
Hypertrophy with pericarditis . . .	22	18 "

The duration of the disease and probably the age of the patient are evidently correlative with the degree of the hypertrophy.

[1] The cases of parenchymatous nephritis recorded in the tables, it will be remembered, all belong to the *chronic* form save fifteen cases which are *acute* Bright's disease. These few cases appear, moreover, nearly in equal proportion in the two series, so that a comparison may be fairly made.

[2] There were six cases among the Hospital records of red granular kidney in which the cause of death was designated *senility*. As there were many aged persons among the autopsy material of this series, I fear that some cases of senile atrophy of the kidneys with absence of hypertrophy of the heart, have crept into these records. This would explain the discrepancy in the statistical results, viz., 60 per cent. of hypertrophy in the Hospital cases to 92 per cent. in my own cases (in red granular kidney).

The average weight of the hypertrophied heart appears from my tables to be as follows in the different forms of Bright's disease:

	Average weight.
In acute Bright's	10 ounces.
In large white kidney	15 "
In fatty and contracted kidney	14 "
In red granular kidney	17 "

Relation of the weight of the body to the weight of the heart.—That the former has a great influence upon the apparent degree of the hypertrophy of the heart, may be gleaned of the table that I submit below, in which the important factor, the weight of the body, expressed in pounds, is considered side by side with the weight of the hypertrophied heart.

TABLE SHOWING RELATION OF WEIGHT OF HEART TO THAT OF BODY.

Weight of the heart as found.	Large white kidneys, including 10 cases acute Bright's disease. (54 cases.)		Fatty and contracted kidneys. (46 cases.)		Red granular kidneys. (50 cases.)	
	Number of cases observed.	Average weight of the bodies.	Number of cases observed.	Average weight of the bodies.	Number of cases observed.	Average weight of the bodies.
Below 10 ounces	13	132	3	120	1	190
10–11 "	5	128	7	130	2	155
11–12 "	2	134	2	135	2	110
12–13 "	6	148	4	130	3	130
13–14 "	5	152	4	134	4	120
14–15 "	3	138	4	132	...	.....
15–16 "	1	145	5	130	6	143
16–17 "	3	157	2	140	7	122
17–18 "	...	.....	3	146	5	135
18–19 "	4	151	2	142	...	.....
19–20 "	3	150	1	130	4	138
20–25 "	9	150	7	152	11	142
25–30 "	...	.....	2	160	5	163

It will be seen from this that advanced degrees of hypertrophy, viz., the heart weighing above 15 ounces, occurred as follows:

	Cases.	Per cent.
Acute Bright's and large white kidney—heart above 15 ounces	20	37.5
Fatty and contracted kidney " " " "	22	48
Red granular kidney " " " "	38	76

Where there were large hearts, as a rule, valvular disease coexisted, especially when associated with the red granular kidney. Also, with

few exceptions, *the largest hearts corresponded more or less with the largest sized bodies.*

Microscopy of the hypertrophied cardiac muscle.—There are two points of interest, that I will but briefly refer to.

1. Cardiac hypertrophy depends upon simple increase in the bulk of the muscular fibres, viz., a simple, true hypertrophy and not upon any hyperplasia (increase in number) of the elements. Each individual muscular fibre in the hypertrophied heart shows by accurate micrometry to be up to twice and three times thicker and longer than the normal muscular fibre of the heart, and it is, therefore, not surprising that the latter should become twice and three times enlarged.

The hyperplasia of the connective tissue, though quite marked in many specimens, is not an important factor in adding to the bulk or weight of the heart.

2. Necrotic change of the muscular fibres was occasionally observed in some of the largest hearts, especially in limited areas. Yet in many instances this proved to be due to cadaveric change, which I need not explain at this place. I refer to this only because in some instances it may be mistaken for true ante-mortem fatty metamorphosis of the cardiac muscle.

Fatty Metamorphosis of Heart.

Fatty metamorphosis of the heart in the 300 cases of Bright's disease tabulated in this paper, was found to be present in only 26 per cent., it being absent in 74 per cent.

The distribution of *fatty metamorphosis* of the *hypertrophied cardiac wall* in the several forms of Bright's disease (see tables of my own cases—coroner's and private) proved to be as follows:

Series A—Coroner's and Private Cases.

	Cases.	Per cent.
In the large white kidney	8	18
In the fatty and contracted kidney	15	33
In the red granular kidney	25	50
Fatty metamorphosis, absent or not stated	102	68
Fatty metamorphosis, without hypertrophy	16	11
Total of fatty metamorphosis	48	32

Series B—Philadelphia Hospital Cases.

	Cases.	Per cent.
In acute Bright's disease	1	20
In the large white kidney	5	14
In the fatty contracted kidney	8	23
In the red granular kidney	17	23
Fatty metamorphosis, absent or not stated	119	79
Fatty metamorphosis, without hypertrophy	20	13

Grand Total.

	Cases.	Per cent.
Fatty metamorphosis, present	79	26
Fatty metamorphosis, absent	221	74

While it appears that fatty metamorphosis of the heart muscle coexists more frequently with the red granular kidney, I found that in many of these cases the necrotic change of the muscle was but slight, whereas in conjunction with the fatty and contracted kidney and in some non-hypertrophied hearts it was decidedly more pronounced. The typical *brown atrophy* of the heart occurred in my cases more commonly in the fatty and contracted kidney, at advanced age and coincident with atheroma of the coronary arteries. The pigmentation around the nuclei of the muscle is also most conspicuous in these cases.

Fatty metamorphosis whenever met with was fairly indicated by the dilatation of the cardiac walls and distinct yellow or brownish striations or patches beneath the endocardium and particularly in the *columnæ carneæ*; occurring with equal frequency in the right and left chambers.

The method adopted for microscopical examination was an easy one and the best, viz., teasing in salt water or weak caustic soda solution: nearly every suspicious heart of Series A was examined while fresh, with the results stated in the records. Fatty infiltration and cirrhosis of the interstitial tissue of the cardiac walls were met with in six cases, combined with fatty metamorphosis.

Arterial Changes.

Atheroma of the aorta and some of the larger vessels was observed as follows:

Series A—Coroner's and Private Cases.

	Cases.	Per cent.
In the large white kidney	12	27.5
In the fatty and contracted kidney	29	63
In the red granular kidney	45	90

Series B—Hospital Cases.

	Cases.	Per cent.
In the large white kidney (including one of acute Bright's disease)	10	23
In the fatty and contracted kidney	13	37
In the red granular kidney	48	64
Total in both series	157	52

Endarteritis and periarteritis of the *renal vessels* were studied only in Series A, and showed:

	Cases.	Per cent.
In the large white kidney	3	7
In the fatty and contracted kidney	4	8
In the red granular kidney	41	82

It should be further noted that whereas the first two of these kidney lesions revealed but slight arterial changes, the red granular kidney showed them well pronounced.

Arterial changes, it is seen, come prominently into consideration only in one form of Bright's disease, viz., the red granular kidney, forming only a small portion of the total histological picture of it. It is not my object in the present paper to go into the consideration of this question. I may state, however, that Gull and Sutton in their excellent original work, "On the Pathology of the morbid state commonly called Bright's Disease," (vide *Med.-Chir. Trans.*, vol. lv. p. 273), appear to refer exclusively to the primarily contracted kidney when they brought forward their famous "Arterio-capillary Fibrosis." Some of the later writers on this subject, however, erroneously attribute *all* forms of Bright's disease to primary vascular changes.

Histological studies in this direction are being conducted, and have been for some time past, in my laboratory by several gentlemen. The results of these investigations, I believe, will prove interesting when published.

Complications.

The prominent complications and concurrent affections other than those already given in my tables (see particularly large table), some of which coöperated in the immediate cause of death, are distributed in the 300 cases of Bright's disease recorded as follows:

Hydrothorax 53, pleurisy 40, emphysema 32, peritonitis 21, syphilis 27, alcoholism 18, puerperal diseases 14, tuberculosis 13, meningitis 13, septicæmia 12, cirrhosis of liver 11, bronchitis 10,

ether narcosis and surgical operation 9, erysipelas 8, gastric cancer 8, aneurism 7, senility 6, cancer of various parts 4, gastric ulcer 4, typhoid fever 3, gangrene 2, scarlatina 2, burns 1, etc. Often two or more of these conditions coexisted.

The *average weight of the kidneys* in the various forms of Bright's disease is of interest and is as follows (in ounces):

	Right.	Left.
Acute Bright's disease	7.65	8.12
Large white kidney	6.91	7.87
Fatty and contracted kidney	4.74	4.86
Red granular kidney	3.13	3.43
General average of	5.61	6.07

MORTALITY OR DURATION OF LIFE IN BRIGHT'S DISEASE AS SEEN FROM THE 300 CASES TABULATED.

SERIES A.—PRIVATE AND CORONER'S CASES

	10–20 yrs.	20–30 yrs.	30–40 yrs.	40–50 yrs	50–60 yrs.	60–70 yrs.	Over 70 years.
Acute Bright's disease,	3	2	3	2	0	0	0
Large white kidney,	4	15	17	6	1	1	0
Fatty and contracted kidney,	0	4	2	14	12	3	1
Red granular kidney,	1	4	5	5	16	15	4

SERIES B.—PHILADELPHIA HOSPITAL CASES.

Acute Bright's disease and large white kidney,	4	6	12	7	5	1	1
Fatty and contracted kidney,	1	1	7	7	7	7	4
Red granular kidney,	0	3	4	16	17	18	17

I admit that as regards many interesting details these studies, as now presented, are deficient. I propose to complete them in the future with such additions as the continuous new supply of material will offer.

The literature on these subjects is very interesting, but I shall not take up space with matters well known to the reader.

APPENDIX.

The following is the detailed account of 300 cases of Bright's disease, summarized in the first part of this paper, extracted from a total of 2472 consecutive autopsy records.

Series A embraces one hundred and fifty cases from my private and coroner's autopsies.

Series B a like number of cases from the Philadelphia Hospital autopsies.[1]

Series A.—*Results of Personal Observations from Coroner's and Private Autopsies, September* 1, 1888, *to September*, 1889, *inclusive.*

Total number of autopsies (upon adults)	1172
Total number of typical Bright's disease (exclusive of amyloid kidneys)	150

Parenchymatous nephritis, including—	No. of cases.	Chronic interstitial nephritis, including (only)—	No. of cases.
Acute Bright's disease . .	10	Red granular or cirrhotic kidney, or primarily contracted (atrophic) kidney . . .	50
Large white kidney . . .	44		
Fatty and contracted kidney, or secondary contracted kidney .	46		
Total	100	Total	50
Males	58	Males	34
Females	42	Females	16
Average age (male and female) .	37	Average age (male and female) .	51.80

Acute Bright's Disease (10 Cases).

The appearance of the kidneys were in each case of acute Bright's disease nearly alike, viz.: surface smooth, capsule not adherent, cortex widened, color red, etc.

Case I. October 1, 1888.—Male, age thirty, weight 170 pounds, bodily condition good. Cause of death burns. Kidneys each 9 ounces. Dropsy general. Heart weight 12 ounces. Valvular disease. Mitral verrucose. Hypertrophy none. Dilatation none. Death on fifth day.

Case II. November 30, 1888.—Female, age seventeen, weight 110 pounds, bodily condition good. Cause of death scarlatina. Kidneys, weight right 7 ounces, left 8 ounces. Heart weight 8½ ounces. Valvular disease none. Hypertrophy none. Dilatation none. Glomerulo-nephritis. Septic embolic foci.

[1] In the manuscript all these cases were tabulated, but owing to the inconvenience of printing tables, they were transcribed and condensed to their present form. To save space some details had of necessity to be dispensed with.

CASE III. December 30, 1888.—Male, age thirty-three, weight 180 pounds, bodily condition good. Cause of death erysipelas. Kidneys, weight of each 7¾ ounces. Dropsy general. Heart weight 9 ounces. Ulcerative endocarditis. Hypertrophy none. Dilatation general. Infarcts.

CASE IV. February 3, 1889.—Male, age twenty-two, weight 140 pounds, bodily condition good. Cause of death fracture of spine. Kidneys, weight right 6½ ounces, left 7 ounces. Dropsy general. Heart weight 10 ounces. Valvular disease none. Hypertrophy none. Dilatation none.

CASE V. March 10, 1889.—Male, age forty-one, weight 200 pounds, bodily condition good. Cause of death erysipelas. Kidneys, weight right 7 ounces, left 9 ounces. Dropsy general. Heart weight 13 ounces. Ulcerative endocarditis. Hypertrophy and dilatation general. Hydrothorax and ascites.

CASE VI. April 2, 1889.—Male, age fifteen, weight 90 pounds, emaciated. Cause of death purpura hemorrhagica. Kidneys each 7 ounces. Dropsy general. Heart weight 8 ounces. Valvular disease none. Hypertrophy none. Dilatation none. Acute meningitis.

CASE VII. April 23, 1889.—Female, age thirty-three, weight 125 pounds, bodily condition good. Cause of death pneumonia. Kidneys each 9 ounces. Dropsy general. Heart weight 11 ounces. Valvular disease none. Hypertrophy slight. Dilatation general. Hydrothorax and hydropericardium. Septic embolism and infarcts of kidneys and spleen.

CASE VIII. May 1, 1889.—Female, age forty, weight 135 pounds, bodily condition good, anæmic. Cause of death erysipelas. Kidneys, weight right 7½ ounces, left 8 ounces. Dropsy general. Heart weight 12 ounces. Acute endocarditis. Hypertrophy general. Dilatation general.

CASE IX. May 31, 1889.—Female, age twenty, weight 130 pounds, general condition good. Cause of death typhoid fever. Kidneys each 7½ ounces. Dropsy general. Heart weight 8½ ounces. Hypertrophy none. Dilatation none. Hemorrhagic infarct of spleen and kidneys.

CASE X. June 28, 1889.—Male, age eighteen, weight 140 pounds, general condition good. Cause of death typhoid fever. Kidneys, weight right 8¼ ounces, left 9½ ounces. Dropsy general. Heart weight 9 ounces. Valvular disease, acute mitral. Hypertrophy none. Dilatation none. Acute meningitis.

LARGE WHITE KIDNEYS (44 CASES).

Appearance of the kidney in all cases: surface smooth, capsule not adherent (with a few exceptions), cortex widened, pale and mottled, or striated.

CASE I. September 5, 1888.—Female, age twenty-nine, weight 125 pounds, bodily condition good. Cause of death uræmia. Kidneys each 7 ounces; smooth, non-adherent. Cysts none. Dropsy present. Cortex widened, pale. Heart weight 10 ounces. Valvular disease none. Hypertrophy none. Dilatation general. Fatty metamorphosis marked. Change in coronary arteries. Pleurisy. Lungs congested and œdematous.

CASE II. September 9, 1888.—Male, age thirty-five, weight 160 pounds, bodily condition good, anæmic. Cause of death uræmia. Kidneys, weight right 8 ounces, left 9½ ounces; smooth, non-adherent. Cysts none. Dropsy present. Cortex widened, pale. Heart weight 14 ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis none. Dilatation slight. Hydrothorax, hydropericardium. Œdema of lungs. Hydrothorax.

CASE III. September 9, 1888.—Female, age twenty-two, weight 140 pounds, bodily condition good. Cause of death puerperal eclampsia. Kidneys, weight right 7 ounces, left 6½ ounces; surface smooth, non-adherent. Cortex widened, pale. Cysts none. Dropsy none. Heart weight 9½ ounces. Valvular disease none. Hypertrophy none. Fatty metamorphosis none. Dilatation none. Arterial change none. Cerebral anæmia.

CASE IV. September 10, 1888.—Female, age twenty-five, weight 120 pounds, bodily condition good. Cause of death uræmia. Kidneys, weight right 7 ounces, left 8⅓ ounces. Capsule slightly adherent. Cortex widened, pale. Cysts none. Dropsy general. Heart weight 10 ounces. Valvular disease none. Hypertrophy none. Fatty metamorphosis none. Dilatation none. Arterial change none.

CASE V. September 10, 1888.—Male, age thirty-four, weight 180 pounds, bodily condition good. Death sudden. Kidneys, weight right 6 ounces, left 9 ounces. Capsule smooth. Cortex enlarged, yellow and red. Cysts none. Dropsy present. Heart weight 24 ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis prominent. Dilatation general. Arterial change none. Cardiac muscle highly fatty. Emphysema and hydrothorax.

CASE VI. September 18, 1888.—Male, age twenty-five, weight 170 pounds, bodily condition good. Cause of death pneumonia. Kidneys, weight right 7 ounces, left 8¼ ounces. Capsule smooth. Cortex widened, pale and mottled. Cyst in left kidney. Dropsy (?). Heart weight 12 ounces. Valvular disease none. Hypertrophy none. Fatty metamorphosis none. Dilatation slight. Arterial change none. Acute pleurisy.

CASE VII. September 21, 1888.—Male, age twenty-seven, weight 145 pounds, bodily condition good. Cause of death heart failure. Kidneys, weight right 5½ ounces, left 9 ounces, surface lobulated, not adherent. Cortex widened, pale and mottled. Cysts none. Dropsy general. Heart weight 15½ ounces. Valvular disease. Aorta, ulcerative endocarditis. Hypertrophy of left ventricle. Fatty metamorphosis none. Dilatation general. Arterial change none. Adhesive pericarditis.

CASE VIII. September 22, 1888.—Female, age nineteen, weight 130 pounds, bodily condition good. Cause of death œdema of lungs. Kidneys each 6 ounces. Capsule smooth. Cortex widened, pale. Cystic change none. Dropsy general. Heart weight 8 ounces. Valvular

disease chronic mitral. Hypertrophy none. Fatty metamorphosis none. Dilatation none Hemorrhagic infaret of spleen and kidney.

Case IX. September 27, 1888.—Male, age twenty-four, weight 140 pounds, bodily condition good. Cause of death uræmia. Kidneys, weight right 6 ounces, left 7½ ounces. Capsule smooth. Cortex widened, pale. Cysts none. Dropsy general. Heart weight 13 ounces. Valvular disease aortic and mitral. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation right ventricle. Arterial change none. Erysipelas of face.

Case X. September 28, 1888.—Female, age twenty-six, weight 130 pounds, well nourished. Cause of death œdema of lungs. Kidneys each 6½ ounces. Cysts none. Dropsy general. Heart weight 9 ounces. Valvular disease none. Hypertrophy none. Fatty metamorphosis prominent. Dilatation general. Arterial change none. Broncho-pneumonia. Pleurisy.

Case XI. October 1, 1888.—Male, age forty, tall, cachectic appearance. Cause of death uræmia. Kidneys, weight right 6 ounces, left 7 ounces. Cysts none. Dropsy of feet and penis. Heart weight 19 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation none. Arterial change, aorta. Pericarditis. Pleurisy. Hydrothorax.

Case XII. October 5, 1888.—Male, age thirty weight 150 pounds, well nourished. Cause of death œdema of lungs. Kidneys each 5 ounces. Cysts none. Dropsy present. Heart weight 20 ounces. Valvular disease, aortic and mitral, acute. Hypertrophy general. Fatty metamorphosis none. Dilatation none. Arterial change none.

Case XIII. November 9, 1888.—Female, age forty-three, weight 110 pounds, emaciated. Cause of death œdema of brain. Kidneys, weight right 4½ ounces, left 8 ounces. Cysts large in both. Dropsy none. Heart weight 13 ounces. Valvular disease none. Hypertrophy none. Fatty metamorphosis none. Dilatation general. Arterial change: aorta, coronary, and cerebral. History of syphilis. Chronic peritonitis.

Case XIV. November 20, 1888.—Male, age nineteen, weight 140 pounds, well nourished. Cause of death œdema of lungs. Kidneys each 9 ounces. Cysts none. Dropsy present. Heart weight 9½ ounces. Valvular disease none. Hypertrophy none. Fatty metamorphosis none. Dilatation none. Arterial change none.

Case XV. November 25, 1888.—Female, age thirty-five, weight 125 pounds, well nourished. Cause of death septicæmia. Kidneys each 8 ounces. Cysts none. Dropsy general. Heart weight 12 ounces. Valvular disease, aortic and mitral, slight. Hypertrophy general. Fatty metamorphosis (?). Dilatation general. Arterial change none. Abortion. Peritonitis.

Case XVI. November 26, 1888.—Male, age thirty-one, weight 160 pounds, well nourished. Cause of death heart failure. Kidneys, weight right 9 ounces, left 10 ounces. Cysts large in both. Dropsy. Heart weight 16 ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis present. Dilatation general. Arterial change none. Hydropericardium, hydrothorax.

Case XVII. December 5, 1888.—Male, age thirty-three, weight 140 pounds, bodily condition good. Cause of death œdema of lungs. Kidneys, weight right 5½ ounces, left 6 ounces. Cysts none. Dropsy. Heart weight 18 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation none. Arterial change none. Hydropericardium, hydrothorax.

Case XVIII. December 18, 1888.—Male, age thirty-nine, weight 135 pounds, bodily condition good, anæmic. Cause of death meningitis. Kidneys each 7½ ounces. Cysts in right kidney. Dropsy general. Heart weight 24 ounces. Valvular disease, mitral, acute. Hypertrophy general. Fatty metamorphosis none. Dilatation none. Arterial change of aorta and cerebral. Pericarditis and pleurisy.

Case XIX. December 19, 1888.—Male, age thirty-one, weight 170 pounds, bodily condition good, anæmic. Cause of death uræmia. Kidneys weight each 8½ ounces. Cysts none. Dropsy general. Heart weight 16½ ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation none. Arterial change none. Hydropericardium and hydrothorax.

Case XX. December 24, 1888.—Female, age sixty-three, weight 190 pounds, bodily condition good. Cause of death uræmia. Kidneys each 7½ ounces. Cysts none. Dropsy general. Heart weight 22 ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis none. Dilatation right ventricle. Arterial change, aorta and cerebral.

Case XXI. January 3, 1889.—Female, age forty-five, weight 115 pounds, emaciated, anæmic. Cause of death heart failure. Kidneys, weight right 6½ ounces, left 8½ ounces. Cysts in left kidney. Dropsy none. Heart weight 14 ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis prominent. Dilatation general. Arterial change: aorta, coronary, cerebral. Emphysema. Hydrothorax. Gastric ulcer.

Case XXII. January 6, 1889.—Male, age fifty-four, weight 140 pounds, bodily condition good, anæmic. Cause of death uræmia. Kidneys, weight right 7½ ounces, left 8½ ounces. Cysts in left kidney. Dropsy general. Heart weight 21½ ounces. Valvular disease, aortic calcification. Hypertrophy general. Fatty metamorphosis none. Dilatation general. Arterial change none. Emphysema and œdema of lungs.

Case XXIII. February 10, 1889.—Male, age thirty-four, very tall, emaciated. Cause of death uræmia. Kidneys each 10 ounces. Cysts in both. Dropsy general. Heart weight 21 ounces. Valvular disease, aortic and mitral. Hypertrophy general. Fatty metamorphosis, slight. Dilatation general. Arterial change: aortic, renal, and cerebral. Hydrothorax and hydropericardium.

CASE XXIV. February 18, 1889.—Male, age twenty-four, weight 140 pounds, well nourished, anæmic. Cause of death œdema of lungs. Kidneys, weight right 8½ ounces, left 7 ounces. Cysts in both. Dropsy general. Heart weight 13 ounces. Valvular disease none. Hypertrophy slight. Fatty metamorphosis some. Dilatation general. Arterial change none. Pleurisy, emphysema.

CASE XXV. March 4, 1889.—Female, age twenty-three, weight 140 pounds, bodily condition good, anæmic. Cause of death puerperal eclampsia. Kidneys each 8 ounces. Cysts none. Dropsy general. Heart weight 10 ounces. No other lesions. Primipara.

CASE XXVI. March 8, 1889.—Male, age sixteen, weight 100 pounds, emaciated, anæmic. Cause of death uræmia. Kidneys each 7½ ounces. Cysts none. Dropsy general. Heart weight 13 ounces. Valvular disease, mitral, acute. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation general. Arterial change none. Acute pleurisy.

CASE XXVII. March 8, 1889.—Male, age thirty, weight 150 pounds, bodily condition good, anæmic. Cause of death œdema of lungs and uræmia. Kidneys, weight right 7 ounces, left 8 ounces. Cysts none. Dropsy general. Heart weight 9½ ounces. No other lesions. Miliary tuberculosis.

CASE XXIX. March 14, 1889.—Male, age thirty-six, weight 200 pounds, bodily condition good, anæmic. Death sudden. Kidneys each 8½ ounces. Cysts none. Dropsy general. Heart weight 20 ounces. Valvular disease, aortic and mitral, chronic. Hypertrophy general. Fatty metamorphosis some. Dilatation general. Arterial change none. Pleurisy, and emphysema and œdema of lungs.

CASE XXX. March 20, 1889.—Female, age thirty-six, weight 120 pounds, bodily condition good, anæmic. Cause of death uræmia. Kidneys each 6½ ounces. Cysts in both. Dropsy general. Heart weight 10 ounces. No other lesion.

CASE XXXI. April 12, 1889.—Female, age thirty-three, weight 140 pounds, bodily condition good. Cause of death puerperal eclampsia. Kidneys, weight right 5 ounces, left 6½ ounces. Cysts none. Dropsy general. Heart weight 14 ounces. Valvular disease none. Hypertrophy left ventricle. No other lesions.

CASE XXXII. April 26, 1889.—Male, forty-two, weight 135 pounds, fat, anæmic. Cause of death uræmia. Kidneys each 6 ounces. Cysts, both full. Dropsy general. Heart weight 18 ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis quite marked. Dilatation general. Arterial change none. Pericarditis and pleurisy.

CASE XXXIII. May 10, 1889.—Male, age thirty-four, bodily condition good, anæmic. Cause of death œdema of lungs. Kidneys, weight right 8 ounces, left 8½ ounces. Cysts left kidney. Dropsy general. Heart weight 23 ounces. Valvular disease, mitral, chronic. Hypertrophy general. Fatty metamorphosis none. Dilatation none. Arterial change: aorta, coronary, renal.

CASE XXXIV. May 12, 1889.—Male, age twenty-eight, weight 170 pounds, bodily condition good. Cause of death pneumonia. Kidneys, weight right 7 ounces, left 9 ounces. Cysts in left kidney. Dropsy general. Heart weight 19½ ounces. Valvular disease none. Hypertrophy left ventricle. No other lesions. Pericarditis and pleurisy.

CASE XXXV. May 12, 1889.—Male, age forty-three, weight 160 pounds, bodily condition good, anæmic. Cause of death general œdema. Kidneys each 6½ ounces. Cysts none. Dropsy general. Heart weight 22 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty degeneration slight. Dilatation general. Arterial change, aorta. Hydrothorax and hydropericardium.

CASE XXXVI. June 10, 1889.—Female, age twenty-one, weight 135 pounds, bodily condition good. Cause of death puerperal septicæmia. Kidneys, weight right 8½ ounces, left 9½ ounces. Cysts none. Dropsy none. Heart weight 9½ ounces. No other lesions. Peritonitis.

CASE XXXVII. June 11, 1889.—Male, age thirty-seven, medium condition. Cause of death œdema of lungs. Kidneys, weight right 5½ ounces, left 7½ ounces. Cysts none. Dropsy none. Heart weight 16½ ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation none. Arterial change general. History of syphilis.

CASE XXXVIII. June 13, 1889.—Female, age thirty, bodily condition good, medium sized. Cause of death uræmia. Kidneys, weight right 8 ounces, left 8½ ounces. Cysts none. Dropsy general. Heart weight 11 ounces. Erysipelas. No other lesions.

CASE XXXIX. June 27, 1889.—Male, age forty-two, weight 139 pounds, bodily condition good, anæmic. Cause of death pneumonia. Kidneys each 7 ounces. Cysts none. Dropsy general. Heart weight 9 ounces. Dilatation slight. No other lesions. Pericarditis and pleurisy.

CASE XL. June 30, 1889.—Female, age twenty-nine, weight 150 pounds, bodily condition good, anæmic. Cause of death fatal hemorrhage. Kidneys, weight right 7 ounces, left 8½ ounces. Cysts none. Dropsy none. Heart weight 18 ounces. Valvular disease, aortic and mitral. Hypertrophy general. No other lesions. Abortion. Peritonitis.

CASE XLI. July 31, 1889.—Male, age twenty-nine, weight 180 pounds, bodily condition good. Cause of death pneumonia. Kidneys, weight right 9 ounces, left 12 ounces. Cysts none. Dropsy general. Heart weight 12½ ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis none. Dilatation right ventricle. Arterial change none. Acute pleurisy.

CASE XLII. July 31, 1889.—Female, age twenty-three, weight 110 pounds, well nourished. Cause of death puerperal septicæmia. Kidneys each 7 ounces. Cysts none. Dropsy general. Heart weight 8½ ounces. No other lesions. Peritonitis. Puerperal convulsions.

CASE XLIII. August 22, 1889.—Male, age twenty-seven, height 6 feet, well nourished. Cause of death pneumonia. Kidneys each 10 ounces. Cysts none. Dropsy general. Heart weight 13 ounces. No other changes. Escaped drowning week previous to death.

Case XLIV. August 22, 1889.—Male, age thirty-four, weight 180 pounds, bodily condition good. Death sudden. Kidneys, weight right 8 ounces, left 9 ounces. Cysts none. Dropsy general. Heart weight 18 ounces. Valvular disease, chronic aortic. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation general. Arterial change, aortic. Pericarditis. Hydrothorax.

Fatty and Contracted Kidney (46 Cases).

Appearance of kidneys in all cases: surface lobulated or granular, capsule adherent, or adherent in places, cortex atrophied, pale or yellowish, or striated.

Case I. October 3, 1888.—Male, age thirty-eight, well nourished, medium size. Cause of death uræmia. Kidneys each 5 ounces. Cysts in both. Dropsy lower extremity. Heart weight 16½ ounces. Valvular disease none. Hypertrophy left ventricle. No other lesions. Pericarditis.

Case II. October 20, 1888.—Male, age thirty-seven, large, bodily condition good. Cause of death uræmia Kidneys each 4½ ounces. Cysts in both. Dropsy lower extremities. Heart weight 24 ounces. Valvular disease, aortic and mitral. Hypertrophy general. Fatty metamorphosis none. Dilatation general. Arterial change, aortic. Emphysema.

Case III. November 1, 1888.—Male, age thirty-eight, bodily condition good, medium size. Cause of death pneumonia. Kidneys each 5¼ ounces. Cysts none. Dropsy lower extremities. Heart weight 19 ounces. Valvular disease, mitral, acute. Hypertrophy general. No other lesions.

Case IV. November 2, 1888.—Male, age forty-two, large, anæmic. Cause of death uræmia. Kidneys, weight right 4 ounces, left 4½ ounces. Cysts in both. Dropsy general. Heart weight 22 ounces. Valvular disease, aortic, slight. Hypertrophy left ventricle. No fatty metamorphosis or dilatation. Arterial change general. History of syphilis. Emphysema. Hydrothorax.

Case V. November 16, 1888.—Female, age thirty-five, weight 120 pounds, large, anæmic. Cause of death œdema of the lungs. Kidneys, weight right 3 ounces, left 4½ ounces. Cysts none. Dropsy general. Heart weight 10 ounces. Valvular disease none. Hypertrophy none. Fatty metamorphosis none. Dilatation general. Arterial change none. Acute peritonitis and ovaritis.

Case VI. November 19, 1888.—Female, age thirty-three, weight 130 pounds, large, anæmic. Cause of death uræmia. Kidneys, weight right 3½ ounces, left 5½ ounces. Cysts present. Dropsy general. Heart weight 10½ ounces. Valvular disease, aortic, acute. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation right ventricle. Arterial change none.

Case VII. November 20, 1888.—Female, age fifty, emaciated, tall. Cause of death exhaustion from cancer of uterus. Kidneys, weight right 4½ ounces, left 5 ounces. Cysts large in left kidney. Dropsy none. Heart weight 15½ ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis (?). Dilatation some. Arterial change none.

Case VIII. November 24, 1888.—Female, age fifty-one, weight 130 pounds, emaciated. Cause of death œdema of lungs. Kidneys each 5 ounces. Cysts in left kidney large. Dropsy present. Heart weight 15 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation left ventricle. Arterial change none. Pleurisy, salpingitis.

Case IX. December 1, 1888.—Female, age forty-six, bodily condition good, medium size. Cause of death uræmia. Kidneys, weight right 5 ounces, left 4 ounces. Cysts large in both. Dropsy. Heart weight 18 ounces. Valvular disease, slight aortic calcification. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation right ventricle. Arterial change, aortic.

Case X. January 3, 1889.—Female, age forty-four, small, emaciated. Cause of death cerebral apoplexy. Kidneys, weight right 4 ounces, left 7 ounces. Cysts none. Dropsy slight. Heart weight 12 ounces. Valvular disease none. Hypertrophy none. Fatty metamorphosis well marked. Dilatation general. Arterial change, aortic, coronary, and cerebral. History of syphilis. Bronchitis.

Case XI. January 4, 1889.—Male, age forty-three, weight 130 pounds, bodily condition good, anæmic. Cause of death uræmia. Kidneys, weight right 4½ ounces, left 5 ounces. Cysts none. Dropsy lower extremities. Heart weight 14 ounces. Valvular disease, chronic aortic. Hypertrophy left ventricle. Fatty metamorphosis slight. Dilatation general. Arterial change general. Pericarditis. Pleurisy chronic.

Case XII. January 6, 1889.—Male, age twenty-eight, weight 140 pounds, bodily condition good. Cause of death uræmia. Kidneys each 4¾ ounces. Cysts none. Dropsy general. Heart weight 11½ ounces. No other lesions. Surgical operation.

Case XIII. January 10 1889.—Female, age fifty-two, weight 170 pounds, bodily condition good. Cause of death cerebral apoplexy. Kidneys, weight right 5 ounces, left 6 ounces. Cysts none. Dropsy none. Heart weight 21 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation none. Arterial change, aortic and cerebral. Pericarditis. Pleurisy and cirrhosis of liver.

Case XIV. January 14, 1889.—Male, age forty-four, large, bodily condition good. Cause of death uræmia. Kidneys each 6¼ ounces. Cysts in both, large. Dropsy. Heart weight 21 ounces. Valvular disease, mitral, chronic. Hypertrophy general. Fatty metamorphosis none. Dilatation general. Arterial change, aortic. Emphysema and bronchitis.

CASE XV. February 4, 1889.—Female, age fifty-two, weight 130 pounds, emaciated, anæmic. Cause of death uræmia. Kidneys, weight right 5 ounces, left 6 ounces. Cysts large in both. Dropsy none. Heart weight 10 ounces. Valvular disease none. Hypertrophy none. Fatty metamorphosis. Brown atrophy. Dilatation general. Arterial change: aortic, coronary, and cerebral. Pleurisy, chronic, and emphysema.

CASE XVI. February 24, 1889.—Male, age forty-five, weight 135 pounds, emaciated, anæmic. Cause of death cerebral apoplexy. Kidneys each 5 ounces. Cysts large in both. Dropsy general. Heart weight 16 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation slight. Arterial changes (?). Hydropericardium, hydrothorax.

CASE XVII. February 25, 1889.—Female, age thirty-nine, weight 140 pounds, bodily condition good, anæmic. Cause of death œdema of the lungs. Kidneys each 4½ ounces. Cysts present. Dropsy lower extremities. Heart weight 13 ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis slight. Dilatation general. Arterial change, coronary. Peritonitis. Meningitis.

CASE XVIII. February 26, 1889.—Female, age twenty-four. weight 130 pounds, emaciated. Cause of death uræmia (?) and septicæmia. Kidneys, weight right 5½ ounces, left 6½ ounces. Cysts none. Dropsy none. Heart weight 10 ounces. No other lesions. Puerperal hemorrhages. Phthisis.

CASE XIX. February 26, 1889.—Male, age thirty, weight 180 pounds, bodily condition good. Cause of death heart failure. Kidneys each 5¼ ounces. Cysts none. Dropsy general. Heart weight 22 ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis (?). Dilatation general. Arterial change none. Adhesive pericarditis.

CASE XX. March 5, 1889.—Male, age sixty-two, weight 130 pounds, bodily condition good. Cause of death ether. Kidneys each 4 ounces. Cysts none. Dropsy none. Heart weight 12 ounces. Valvular disease, mitral. Hypertrophy none. Fatty metamorphosis, brown atrophy. Dilatation general. Arterial change: aortic, coronary, and cerebral. Emphysema.

CASE XXI. March 9, 1889.—Male, age sixty, weight 155 pounds, anæmic. Cause of death cerebral apoplexy. Kidneys each 5 ounces. Cysts numerous in both. Dropsy none. Heart weight 17½ ounces. Valvular disease, aortic calcification. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation general. Arterial change: aortic, coronary, and cerebral. Pleurisy, œdema of the lungs. Hydrothorax.

CASE XXII. March 10, 1889.—Male, aged fifty-one, small, emaciated. Cause of death cerebral apoplexy. Kidneys, weight right 4½ ounces, left 5¼ ounces. Cysts large in both. Dropsy lower extremities. Heart weight 14 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis (?). Dilatation none. Arterial changes: aortic and cerebral.

CASE XXIII. March 14, 1889.—Female, age fifty, weight 155 pounds, bodily condition good, anæmic. Cause of death uræmia. Kidneys each 4½ ounces. Cysts large in both. Dropsy lower extremities. Heart weight 13 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis some. Dilatation right ventricle. Arterial change: aortic, cerebral, and renal. Hemorrhagic infarcts. Peritonitis.

CASE XXIV. March 24, 1889.—Male, age forty, weight 170 pounds, bodily condition good. Cause of death uræmia. Kidneys, weight right 5 ounces, left 5½ ounces. Cysts present. Dropsy general. Heart weight 30 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation general. Arterial changes none. Adhesive pericarditis. Pleurisy and bronchitis. Gastric ulcer.

CASE XXV. April 1, 1889.—Male, age fifty-four, weight 135 pounds, emaciated. Cause of death cholestæmia. Kidneys, weight right 4 ounces, left 5 ounces. Cysts in both. Dropsy general. Heart weight 10 ounces. Valvular disease none. Hypertrophy none. Fatty metamorphosis some. Dilatation general. Arterial change: aortic, coronary, and cerebral. Jaundice. Cirrhosis and atrophy of liver. Emphysema. Hydrothorax.

CASE XXVI. April 2, 1889.—Male, age fifty-three, weight 140 pounds, emaciated. Cause of death uræmia. Kidneys each 6 ounces. Cysts in both. Dropsy general. Heart weight 12 ounces. Valvular disease, mitral, chronic. Hypertrophy slight, general. Brown atrophy. Dilatation general. Arterial change: aortic, coronary, and cerebral. Cancer of stomach. Emphysema. Hydrothorax.

CASE XXVII. April 7, 1889.—Female, age forty-eight, bodily condition good, medium. Cause of death œdema of lungs. Kidneys each 5¼ ounces. Cysts in both. Dropsy some. Heart weight 11 ounces. Valvular disease none. Hypertrophy none. Fatty metamorphosis present. Dilatation general. Arterial change: aortic, coronary, and cerebral.

CASE XXVIII. May 4, 1889.—Male, age fortyt-hree, small, emaciated, and anæmic. Cause of death uræmia. Kidneys each 4 ounces. Cysts large in right kidney. Dropsy none. Heart weight 21 ounces. Valvular disease none. Hypertrophy left ventricle. No other lesions.

CASE XXIX. May 6, 1889.—Female, age fifty, small, emaciated, and anæmic. Cause of death cerebral apoplexy. Kidneys each 5 ounces. Cysts none. Dropsy none. Heart weight 10 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none (?). Dilatation none (?). Arterial changes: aortic, cerebral, and coronary. Organs not obtained.

CASE XXX. May 16, 1889.—Female, age thirty-nine, weight 110 pounds, small, emaciated. Death sudden. Kidneys each 4¾ ounces. Cysts none. Dropsy present. Heart weight 9 ounces. Valvular disease, mitral, chronic. Hypertrophy none. Fatty metamorphosis prominent. Dilatation general. Arterial change: aortic, coronary, and cerebral. Epithelioma of womb. Peritonitis.

CASE XXXI. June 3, 1889.—Female, age forty-one, weight 121 pounds, small, emaciated. Cause of death pneumonia. Kidneys, weight right 4 ounces, left 4½ ounces. Cysts present.

Dropsy none. Heart weight 8 ounces. Valvular disease, aortic, slight. Hypertrophy none. Fatty metamorphosis none. Dilatation some. Arterial change none.

Case XXXII. June 24, 1889.—Female, age forty-nine, weight 140 pounds, fair. Death sudden. Kidneys, weight right 3¾ ounces, left 4½ ounces. Cysts in both. Dropsy none. Heart weight 15½ ounces. Valvular disease, mitral, chronic. Hypertrophy general. Fatty metamorphosis (?). Dilatation general. Arterial change: aortic, coronary, and cerebral. Hydrothorax.

Case XXXIII. June 27, 1889.—Male, age forty-two, six feet two inches in height, emaciated. Cause of death uræmia. Kidneys, weight right 4 ounces, left 4½ ounces. Cysts large in left kidney. Dropsy none. Heart weight 21 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation none. Arterial change: aortic and cerebral. Emphysema. Meningitis. Hydrothorax.

Case XXXIV. July 1, 1889.—Male, age thirty-nine, bodily condition good, medium size. Cause of death œdema of lungs. Kidneys, weight right 5¼ onnces, left 6 ounces. Cysts none. Dropsy general. Heart weight 17 ounces. Valvular disease none. Hypertrophy left ventricle. No other changes. Hydrothorax, hydropericardium, pleurisy.

Case XXXV. July 6, 1889.—Male, age thirty, weight 130 pounds, emaciated. Cause of death uræmia. Kidneys, weight right 3½ ounces, left 4½ ounces. Cysts in both. Dropsy present. Heart weight 15 ounces. Valvular disease none. Hypertrophy left ventricle. No other changes. Hydrothorax, pleurisy, and hydropericardium.

Case XXXVI. July 9, 1889.—Male, age thirty-six, weight 150 pounds, bodily condition good. Cause of death uræmic coma. Kidneys, weight right 4 ounces, left 4½ ounces. Cysts none. Dropsy general. Heart weight 18 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation slight. Arterial change, aortic. Hydrothorax.

Case XXXVII. July 9, 1889.—Female, age fifty-two, weight 120 pounds, emaciated. Cause of death heart failure. Kidneys, weight right 7 ounces, left 5 ounces. Cysts in right kidney. Dropsy lower extremities. Heart weight 15 ounces. Valvular disease, aortic, chronic. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation right ventricle. Arterial changes: aortic and coronary. Pericarditis.

Case XXXVIII. July 12, 1889—Male, age thirty-five, weight 179 pounds, bodily condition good. Death sudden. Kidneys each 4½ ounces. Cysts p esent. Dropsy lower extremities. Heart weight 17 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis some. Dilatation left ventricle. Arterial changes: general, slight. Hydropericardium and hydrothorax.

Case XXXIX. July 26, 1889.—Female, age forty-six, weight 190 pounds, fat. Cause of death pachymeningitis. Kidneys, weight right 6 ounces, left 7 ounces. Cysts none. Dropsy none. Heart weight 15½ ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. No other changes. History of sunstroke.

Case XL. August 10, 1889.—Female, age forty-six, weight 140 pounds, emaciated. Cause of death uræmia. Kidneys, weight right 5½ ounces, left 6 ounces. Cysts present. Dropsy lower extremities. Heart weight 10 ounces. Valvular disease none. Hypertrophy none. Brown atrophy. Dilatation general. Arterial change: aortic, coronary, and cerebral. Pericarditis, pleurisy. Meningitis. Phthisis.

Case XLI. August 13, 1889.—Male, age twenty-seven, small. Cause of death uræmia. Kidneys, weight right 4½ ounces, left 5 ounces. Cystic change none. Dropsy lower extremities. Heart weight 14 ounces. Valvular disease, mitral. Hypertrophy general. No other changes. Pericarditis, pleurisy.

Case XLII. August 24, 1889.—Male, fifty-six, medium size. Cause of death cerebral apoplexy. Kidneys each 4½ ounces. Large cyst in left kidney. Dropsy lower extremities. Heart weight 13 ounces. Valvular disease, aortic calcification. Hypertrophy slight. Fatty metamorphosis (?). Dilatation left ventricle. Arterial change aortic. Pericarditis, pleurisy, meningitis.

Case XLIII. August 26, 1889.—Female, age twenty-three, weight 139 pounds, bodily condition good. Cause of death puerperal eclampsia. Kidneys each 5 ounces. Cysts none. Dropsy general. Heart weight 9 ounces. Dilatation general. No other changes.

Case XLIV. August 29, 1889.—Male, age fifty, weight 150 pounds, emaciated. Found dead in bed. Kidneys, weight right 4¼ ounces, left 3¼ ounces. Cysts large in right kidney. Dropsy none. Heart weight 16 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis (?). Dilatation none. Arterial change: aortic and cerebral. Œdema of brain.

Case XLV. August 31, 1889.—Male, age seventy-four, medium size. Cause of death heart failure. Kidneys each 4½ ounces. Cysts in both. Dropsy none. Heart weight 14 ounces. Valvular disease, aortic, slight. Hypertrophy general. Brown atrophy. Dilatation general. Arterial change: coronary and cerebral.

Case XLVI. August 31, 1889.—Female, age sixty-five, tall and lean. Cause of death hemorrhage and pachymeningitis. Kidneys each 4 ounces. Cysts present. Dropsy general. Heart weight 12 ounces. Valvular disease, aortic, slight. Hypertrophy slight. Fatty metamorphosis some. Dilatation general. Arterial change: aortic, coronary, and cerebral.

Red Granular or Primary Contracted Kidney (50 Cases).

Appearance of the kidneys in nearly all cases alike, viz.: capsule adherent, surface granular, red or grayish-brown, cortex atrophied, etc.

Case I. September 2, 1888.—Female, age sixty-five, weight 130 pounds, bodily condition good. Cause of death cerebral apoplexy. Kidneys each 3 ounces. Cysts minute. Dropsy none. Heart weight 12½ ounces. Valvular disease, senile calcification. Hypertrophy general. Brown atrophy. Dilatation general. Arterial change: coronary, cerebral, and renal. Atrophy of liver. Fibroid of uterus.

Case II. September 6, 1888.—Male, age sixty, weight 130 pounds, emaciated. Death sudden. Kidneys, weight right 3½ ounces, left 3¾ ounces. Cysts minute. Dropsy none. Heart weight 12 ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis present. Dilatation general. Arterial change same as last. Emphysema.

Case III. September 10, 1888.—Male, thirty-four, weight 140 pounds, emaciated. Cause of death meningitis. Kidneys weight right 2½ ounces, left 3¼ ounces. Cysts minute. Dropsy none. Heart weight 28½ ounces. Valvular disease, aortic. Hypertrophy left ventricle. Fatty metamorphosis present. Dilatation right side. Arterial change: aortic, coronary, cerebral, and renal. Cirrhosis of liver. Hydrothorax. History of syphilis.

Case IV. September 20, 1888.—Female, age twenty-one, small, anæmic. Cause of death uræmia. Kidneys, weight right 3 ounces, left 2½ ounces. Cysts none. Dropsy none. Heart weight 16 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation slight. Arterial changes general. History of syphilis.

Case V. September 28, 1888.—Male, age fifty-four, weight 150 pounds, anæmic, muscular. Cause of death uræmia. Kidneys each 3¼ ounces. Cysts in right kidney. Dropsy present. Heart weight 22 ounces. Valvular disease, aortic calcification. Hypertrophy left ventricle. Fatty metamorphosis present. Dilatation left side. Arterial change: aortic, renal, and coronary. Chronic pleurisy. Aneurism, aorta.

Case VI. October 16, 1888.—Male, age twenty-four, weight 150 pounds, muscular. Cause of death œdema of lungs. Kidneys, weight right 2¼ ounces, left 3½ ounces. Cysts none. Dropsy none. Heart weight 15¼ ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation right side. Arterial change slight, general. Rheumatism in family. Pericarditis. Cirrhosis of liver. Emphysema. Pleurisy.

Case VII. October 17, 1888.—Male, age fifty-seven, weight 130 pounds, emaciated. Cause of death œdema of lungs. Kidneys each 3¼ ounces. Cysts none. Dropsy none. Heart weight 16 ounces. Valvular disease, aortic calcification. Hypertrophy left ventricle. Fatty metamorphosis present. Dilatation right side. Arterial change, coronary. Emphysema and pericarditis. Pleurisy.

Case VIII. October 25, 1888.—Male, age sixty-four, weight 140 pounds, emaciated. Cause of death uræmic convulsions. Kidneys each 2¼ ounces. Cysts minute. Dropsy none. Heart weight 20 ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis none. Dilatation general. Arterial change: aortic, renal, and coronary. Emphysema, pleurisy.

Case IX. October 28, 1888.—Male, age twenty-eight, weight 135 pounds, emaciated. Cause of death uræmia. Kidneys each 2½ ounces. Cysts none. Dropsy slight. Heart weight 22 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis marked. Dilatation general. Arterial change general. Cystitis and stricture.

Case X. October 29, 1888.—Male, age forty-five, weight 150 pounds, fairly nourished. Cause of death cerebral apoplexy. Kidneys, weight right 2½ ounces, left 3¼ ounces. Cysts none. Dropsy none. Heart weight 19 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation none. Arterial change general. Aneurism, aorta.

Case XI. November 1, 1888.—Male, age sixty, weight 120 pounds, emaciated. Cause of death œdema of lungs. Kidneys, weight right 3 ounces, left 3½ ounces. Cysts small and numerous. Dropsy present. Heart weight 20 ounces. Valvular disease, aortic calcification. Hypertrophy left ventricle. Fatty metamorphosis general. Dilatation right side. Arterial change general. Chronic pleurisy and pericarditis.

Case XII. November 4, 1888.—Male, age sixty, weight 130 pounds, emaciated. Cause of death œdema of lungs. Kidneys each 3¼ ounces. Cysts none. Dropsy present. Heart weight 17 ounces. Valvular disease, aortic calcification. Hypertrophy left ventricle. Fatty metamorphosis present. Dilatation general and great. Arterial change general. Heart-muscle very fatty. Emphysema. Hydrothorax.

Case XIII. November 8, 1888.—Male, age fifty-one, weight 135 pounds, emaciated. Death sudden. Kidneys, weight right 4 ounces, left 5 ounces. Cysts none. Dropsy none. Heart weight 25 ounces. Valvular disease, mitral, chronic. Hypertrophy general. Fatty metamorphosis none. Dilatation general. Arterial change, aortic and renal. Chronic pleurisy. Bronchiectasis. History of syphilis.

Case XIV. November 9, 1888.—Female, age seventy-three, weight 130 pounds, emaciated. Cause of death cerebral apoplexy. Kidneys each 3¼ ounces. Cysts none. Dropsy none. Heart weight 15½ ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation none. Arterial change aortic, general. Cirrhosis of liver. Emphysema, chronic pleurisy. Cirrhosis of liver.

Case XV. November 9, 1888.—Female, age forty-six, weight 140 pounds, emaciated. Cause of death œdema of lungs, uræmia. Kidneys each 3½ ounces. Cysts and dropsy present. Heart weight 22 ounces. Valvular disease, mitral. Hypertrophy general. Fatty metamorphosis none. Dilatation none. Arterial change, aortic and renal. Chronic pericarditis and pleurisy.

Case XVI. November 15, 1888.—Female, age fifty-nine, weight 110 pounds, much emaciated. Death sudden. Kidneys each 2½ ounces. Cysts none. Dropsy none. Heart weight 13 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation none. Arterial change general but slight. Pachymeningitis.

Case XVII. November 19, 1888.—Male, age sixty-five, weight 135 pounds, emaciated. Cause of death uræmic convulsions. Kidneys, weight right 2 ounces, left 4 ounces. Cysts present. Dropsy none. Heart weight 16½ ounces. Valvular disease, aortic stenosis, calcified. Hypertrophy left ventricle. Fatty metamorphosis present. Dilatation general. Arterial change general. History of syphilis.

Case XVIII. November 22, 1888.—Female, age sixty-six, weight 120 pounds, emaciated. Cause of death uræmia. Kidneys each 4 ounces. Cysts none. Dropsy of feet. Heart weight 17 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation left side. Arterial change general. History of syphilis.

Case XIX. November 30, 1888.—Male, age sixty, weight 180 pounds, bodily condition good. Cause of death œdema of brain and lungs. Kidneys each 4¼ ounces. Cysts none. Dropsy present. Heart weight 24 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis some. Dilatation general. Arterial change general. Chronic pericarditis and pleurisy.

Case XX. December 2, 1888.—Male, age thirty-three, weight 150 pounds, well nourished. Anæmia and history of malaria. Cause of death œdema of lungs. Kidneys each 4 ounces. Cyst in left kidney. Dropsy none. Heart weight 17½ ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation general. Arterial change general. Rheumatism, lead colic.

Case XXI. December 8, 1888.—Male, age sixty-six, weight 120 pounds, well nourished. Cause of death cerebral apoplexy. Kidneys, weight right 3½ ounces, left 3¾ ounces. Cysts present. Dropsy none. Heart weight 25 ounces. Valvular disease, aortic and mitral. Hypertrophy general. Fatty metamorphosis none. Dilatation general. Arterial change general. Hydropericardium, hydrothorax, emphysema. Gastric cancer.

Case XXII. December 10, 1888.—Female, age thirty-two, weight 100 pounds, emaciated, muscular. Cause of death uræmia. Kidneys each 2¼ ounces. Cysts none. Dropsy present. Heart weight 17 ounces. Valvular disease, aortic, acute. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation none. Arterial change slight but general. History of syphilis.

Case XXIII. December 13, 1888.—Female, age forty-six, weight 155 pounds, bodily condition good. Cause of death uræmia. Kidneys, weight right 3 ounces, left 4 ounces. Cysts none. Dropsy present. Heart weight 17½ ounces. Valvular disease, aortic and mitral slight. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation general. Arterial change general. Hydropericardium and hydrothorax.

Case XXIV. December 29, 1888.—Male, age fifty-eight, weight 155 pounds, bodily condition good. Death sudden. Kidneys, weight right 2¾ ounces, left 3½ ounces. Cysts minute. Dropsy none. Heart weight 26 ounces. Valvular disease, aortic calcification. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation general. Arterial change general. Hydronephrosis. Hydrothorax.

Case XXV. January 5, 1889.—Male, age seventy, weight 150 pounds, emaciated. Death sudden. Kidneys, weight right 2½ ounces, left 2¾ ounces. Cysts none. Dropsy none. Heart weight 15 ounces. Valvular disease, aortic and mitral calcification. Hypertrophy general. Brown atrophy. Dilatation general. Arterial change general. Emphysema. History of syphilis.

Case XXVI. January 24, 1889.—Female, age forty-nine, weight 135 pounds, emaciated. Cause of death uræmia. Kidneys each 2½ ounces. Cysts none. Dropsy none. Heart weight 16 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation none. Arterial change aortic and renal. Gastric ulcer.

Case XXVII. January 30, 1889.—Female, age nineteen, weight 120 pounds, small. Cause of death uræmia. Kidneys, weight right 4 ounces, left 5 ounces. Cysts none. Dropsy none. Heart weight 13 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation none. Arterial change general. History of syphilis.

Case XXVIII. January 31, 1889.—Male, age fifty-two, weight 160 pounds, bodily condition good. Cause of death œdema of lungs. Kidneys, weight right 4½ ounces, left 2¼ ounces. Cysts present. Dropsy of extremities. Heart weight 23 ounces. Valvular disease, aortic and mitral, slight. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation general. Arterial change general. Pleurisy and œdema of brain. Aneurism of aorta.

Case XXIX. February 2, 1889.—Male, age forty-five, weight 140 pounds, bodily condition good. Cause of death meningitis and œdema of brain. Kidneys, weight right 2½ ounces, left 4 ounces. Cysts present. Dropsy of extremities. Heart weight 10 ounces. Arterial change general. No other lesions. Syphilis and pleurisy. Hydrothorax.

Case XXX. March 10, 1888.—Male, age sixty-five, weight 170 pounds, emaciated. Cause of death heart failure. Kidneys, weight right 1½ ounces, left 3 ounces. Cysts none. Dropsy none. Heart weight 19 ounces. Valvular disease, aortic, chronic. Hypertrophy general. Dilatation general. Fatty metamorphosis pronounced. Arterial change general. Emphysema and pleurisy.

CASE XXXI. April 4, 1889.—Male, age sixty, small and emaciated. Cause of death cerebral apoplexy. Kidneys each 4 ounces. Cysts present. Dropsy none. Heart weight 20 ounces. Valvular disease, aortic, chronic. Hypertrophy left ventricle. Fatty metamorphosis slight. Arterial change, aortic. Dilatation slight. Pericarditis and pleurisy. Emphysema.

CASE XXXII. April 15, 1889.—Male, age sixty-one, well nourished, anæmic, weight 190 pounds. Death sudden. Kidneys each 2¾ ounces. Cysts present. Dropsy present. Heart weight 9 ounces. Valvular disease, mitral, chronic. Hypertrophy none. Brown atrophy. Dilatation general. Arterial change, aortic. History of syphilis.

CASE XXXIII. April 26, 1889.—Male, age fifty-nine, small, emaciated. Cause of death uræmia. Kidneys, weight right 1½ ounces, left 3 ounces. Cysts present. Dropsy slight. Heart weight 19 ounces. Valvular disease, aortic, chronic. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation slight. Arterial change general. Emphysema and pleurisy.

CASE XXXIV. May 3, 1889.—Male, age sixty-five, weight 200 pounds, muscular. Cause of death œdema of lungs. Kidneys, weight right 4 ounces, left 4½ ounces. Cysts present. Dropsy present. Heart weight 13 ounces. Valvular disease, aortic, chronic. Hypertrophy none. Fatty metamorphosis none. Dilatation general. Arterial change (?). Pericarditis and emphysema. Acute alcoholism.

CASE XXXV. May 15, 1889.—Male, age fifty, weight 220 pounds, well nourished. Cause of death uræmia. Kidneys each 2½ ounces. Cysts none. Dropsy present. Heart weight 28 ounces. Valvular disease, aortic, chronic. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation left ventricle. Arterial change general. Cirrhosis of liver. Emphysema.

CASE XXXVI. May 20, 1889.—Male, age sixty-eight, weight 150 pounds, tall, emaciated. Cause of death cerebral apoplexy. Kidneys, weight right 4 ounces, left 5 ounces. Cysts present. Dropsy none. Heart weight 20½ ounces. Valvular disease, aortic and mitral. Hypertrophy general. Fatty metamorphosis none. Dilatation general. Arterial change general.

CASE XXXVII. May 30, 1889.—Female, age fifty-seven, small, emaciated. Death sudden. Kidneys each 4 ounces. Cysts none. Dropsy present. Heart weight 21 ounces. Valvular disease, mitral, slight. Hypertrophy general. Brown atrophy. Dilatation general. Arterial change general. Hydropericardium, hydrothorax. Emphysema.

CASE XXXVIII. May 30, 1889.—Male, age fifty-seven, fair, medium size. Cause of death pneumonia. Kidneys each 3 ounces. Cysts none. Dropsy present. Heart weight 16½ ounces. Valvular disease, aortic calcification. Hypertrophy left ventricle. Fatty metamorphosis (?). Dilatation left ventricle. Arterial changes, aorta (?). Cirrhosis of liver.

CASE XXXIX. June 10, 1889.—Male, age thirty, weight 150 pounds, well nourished. Cause of death œdema of lungs. Kidneys each 3¼ ounces. Cysts none. Dropsy lower extremities. Heart weight 15 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation general. Arterial change (?). Syphilitic lesions.

CASE XL. June 18, 1889.—Male, age fifty-eight, weight 150 pounds, tall, emaciated, anæmic. Cause of death *ether*. Kidneys, weight right 4 ounces, left 3½ ounces. Cysts present. Dropsy none. Heart weight 17½ ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis none. Dilatation slight. Arterial change (?). Pericarditis and pleurisy.

CASE XLI. June 20, 1889.—Female, age fifty-three, weight 130 pounds, well nourished. Death sudden. Kidneys each 3¼ ounces. Cysts present. Dropsy none. Heart weight 12 ounces. Valvular disease none. Hypertrophy slight. Fatty metamorphosis (?). Dilatation slight. Arterial changes (?). Gastric cancer.

CASE XLII. June 20, 1889.—Female, age fifty-two, weight 110 pounds, emaciated. Cause of death œdema of lungs. Kidneys each 2¼ ounces. Cysts none. Dropsy none. Heart weight 15 ounces. Valvular disease none. Hypertrophy none. Fatty metamorphosis none. Dilatation general. Arterial changes general. Pericarditis and history of rheumatism.

CASE XLIII. June 30, 1889.—Male, age twenty-six, weight 130 pounds, emaciated. Cause of death uræmia. Kidneys each 2½ ounces. Cysts none. Dropsy none. Heart weight 23 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation general. Arterial change general, slight. History unknown.

CASE XLIV. July 1, 1889.—Male, age fifty-nine, weight 135 pounds, emaciated. Cause of death uræmia. Kidneys each 4 ounces. Cysts none. Dropsy none. Heart weight 16 ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis none. Dilatation general. Arterial change general. Emphysema, pericarditis, and bronchiectasis.

CASE XLV. July 7, 1889.—Male, age sixty, weight 170 pounds, well nourished. Cause of death œdema of lungs. Kidneys, weight right 4 ounces, left 3½ ounces. Cysts present. Dropsy present. Heart weight 15 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation none. Arterial change, aorta (?). Emphysema and pericarditis. Hydrothorax.

CASE XLVI. July 16, 1889.—Female, age seventy-six, small, emaciated. Cause of death cerebral apoplexy. Kidneys each 4 ounces. Cysts none. Dropsy none. Heart weight 11 ounces. Valvular disease, aortic and mitral, senile. Hypertrophy slight. Fatty metamorphosis slight. Dilatation none. Arterial change general.

CASE XLVII. August 8, 1889.—Male, age fifty-three, weight 130 pounds, emaciated. Cause of death œdema of lungs. Kidneys, weight right 4 ounces, left 4½ ounces. Cysts present. Dropsy present. Heart weight 13 ounces. Valvular disease, aortic, chronic. Hypertrophy slight. Brown atrophy. Dilatation general. Arterial changes general. Emphysema. Syphilis.

CASE XLVIII. August 15, 1889.—Female, age fifty, weight 110 pounds, small, anæmic. Cause of death heart failure. Kidneys each 4½ ounces. Cysts none. Dropsy none. Heart weight 14 ounces. Valvular disease none. Hypertrophy general. Brown atrophy. Dilatation general. Arterial changes general. Liver atrophied. Icterus.

Case XLIX. August 23, 1889.—Male, age thirty-eight, weight 130 pounds, emaciated. Cause of death uræmia. Kidneys each 3 ounces. Cysts none. Dropsy none. Heart weight 12 ounces. Valvular disease none. Hypertrophy left ventricle. Fatty metamorphosis none. Dilatation none. Arterial changes (?). Spleen 12 ounces. History of malaria.

Case L. August 24, 1889.—Female, age seventy-six, weight 140 pounds, well nourished. Cause of death cerebral apoplexy. Kidneys, weight right 2½ ounces, left 3½ ounces. Cysts none. Dropsy none. Heart weight 10½ ounces. Valvular disease, senile calcification. Hypertrophy none. Brown atrophy. Dilatation general. Arterial change general.

Series B.—*Results of the Analysis of the Autopsy Records of the Philadelphia Hospital for Five Years*, (1884–1889).

Total number of autopsies	1300
Total number of typical Bright's disease (exclusive of amyloid kidneys)	150

Parenchymatous nephritis, including—	No. of cases.	Chronic interstitial nephritis, including only—	No. of cases.
Acute Bright's disease	5	Red granular or cirrhotic kidney, or primarily contracted (atrophic) kidney	75
Large white kidney	35		
Fatty and contracted, or secondary contracted kidney	35		
Total	75	Total	75
Males	52	Males	39
Females	23	Females	36
Average age	43	Average age	59

Acute Bright's Disease, or Acute Parenchymatous Nephritis (5 Cases).

Appearance of kidneys the same as given in the first series.

Case I. Tyson, June 8, 1885.—Male, age thirty-two. Cause of death pneumonia. Kidneys one-third larger than normal. Dropsy Heart normal size. Fatty metamorphosis. Valvular disease, mitral regurgitation. Dilatation left side. General anasarca.

Case II. Osler, January 23, 1888.—Male, age forty-four. Cause of death œdema of lungs. Kidneys equally large, swollen. Dropsy. Heart large. Hypertrophy slight. Atheroma posterior coronary artery. General anasarca.

Case III. Henry, March 23, 1888.—Male, age thirty-three. Cause of death erysipelas. Kidneys 10 ounces each. Dropsy. Heart weight 15 ounces. Hypertrophy left side. General anasarca. Acute pleurisy.

Case IV. Musser, August 7, 1888.—Male, age thirty-five. Cause of death œdema of lungs. Kidneys much enlarged. Heart normal size. Slight hypertrophy. Aorta dilated.

Case V. Neff, October 17, 1886.—Male, age fourteen. Cause of death pneumonia. Kidneys much enlarged. Dropsy. Heart normal. Acute hepatitis.

Large White Kidney (35 Cases).

Appearance of the kidneys the same as given in the first series of cases.

Case I. Neff, August 1, 1884.—Male, age forty-seven. Death sudden. Kidneys both equal but half larger than normal. Cysts present. Dropsy present. Heart weight 28 ounces. Valvular disease, aortic and mitral insufficiency. Hypertrophy general. Fatty metamorphosis none. Dilatation general. Atheroma none. Chronic endocarditis.

CASE II. Curtin, October 4, 1884.—Male, age forty-four. Death sudden. Kidneys slightly enlarged equally. Cysts present. Heart normal size, but muscle anæmic.

CASE III. Parvin, February 2, 1885.—Female, age eighteen. Cause of death puerperal septicæmia. Kidneys each 9½ ounces. Heart slightly enlarged. Dilatation right side. No other lesion.

CASE IV. Hearn, September 21, 1885.—Female, age thirty-two. Cause of death surgical operation. Heart normal size. Disease of femur.

CASE V. Walker, October 1, 1885.—Female, age twenty-four. Cause of death uræmia. Dropsy. Heart normal.

CASE VI. Tyson, December 29, 1885.—Female, age thirty-one. Cause of death acute endocarditis. Kidneys, weight right 14 ounces, left 13 ounces. Dropsy. Heart enlarged. Valvular disease, aortic and mitral. Hypertrophy left side. Hydrothorax. No other lesions.

CASE VII. Walker, February 13, 1886.—Male, age thirty-nine. Cause of death heart failure. Kidneys enlarged. Dropsy. Heart large. Valvular disease, aortic and mitral insufficiency. Hypertrophy general. Fatty metamorphosis. Dilatation general. Atheroma of aorta. Lung compressed from great hypertrophy of heart.

CASE VIII. Stryker, April 25, 1886.—Female, age twenty. Cause of death uræmic coma. Kidneys each 10 ounces. Dropsy present. Heart weight 11 ounces.

CASE IX. Wilson, May 14, 1886.—Female, age thirty-eight. Cause of death uræmia. Kidneys each one-third above normal. Dropsy general. Heart somewhat enlarged. Hypertrophy slight, general. Atheroma slight in aorta.

CASE X. Tyson, July 8, 1886.—Male, age thirty. Cause of death œdema of lungs. Kidneys much enlarged. Heart normal size.

CASE XI. Mills, October 17, 1886.—Male, age thirty. Cause of death pneumonia. Kidneys each one-third above normal. Heart large. Valvular disease, aortic. Hypertrophy left side. Fatty metamorphosis probably present. Dilatation left side.

CASE XII. Neff, October 27, 1886.—Male, age thirty-nine. Cause of death embolic pneumonia. Kidneys each 11 ounces. Cysts present. Heart weight 23 ounces. Valvular disease, aortic. Hypertrophy general. Dilatation general.

CASE XIII. Osler, December 11, 1886.—Male, age seventy-one. Cause of death meningitis (purulent, basic). Kidneys each 7 ounces. Cysts innumerable. Heart medium size. Valvular disease, mitral and aortic. Brown atrophy. Atheroma, aorta, and places in coronary.

CASE XIV. Neff, January 1, 1887.—Female, age sixteen. Cause of death œdema of lungs. Kidneys much enlarged. Dropsy. Heart normal.

CASE XV. Bruen, April 11, 1887.—Male, age thirty-three. Cause of death œdema of lungs. Kidneys enlarged. Dropsy. Heart weight 32 ounces. Valvular disease, mitral regurgitation. Hypertrophy general. Dilatation general.

CASE XVI. Bruen, June 11, 1887.—Male, age thirty-four. Cause of death œdema of lungs. Kidneys above normal. Dropsy. Heart large. Hypertrophy general.

CASE XVII. Tyson, July 26, 1887.—Male, age seventy. Cause of death congestion of lungs. Kidneys large, unequal. Dropsy. Heart large. Valvular disease, aortic and mitral. Hypertrophy general. Fatty metamorphosis present. Atheroma of aorta and coronary. Large right inguinal hernia.

CASE XVIII. Walker, July 13, 1887.—Male, age twenty-six. Cause of death phthisis. Kidneys each 10 ounces. Heart normal.

CASE XIX. Wilson, July 22, 1887.—Female, age thirty-three. Cause of death uræmia. Kidneys equally enlarged. Heart normal in size. Valvular disease, mitral stenosis.

CASE XX. Musser, August 16, 1887.—Male, age thirty-seven. Cause of death uræmia. Kidneys each 8 ounces. Dropsy. Heart weight 11 ounces. Hypertrophy general. Pericarditis.

CASE XXI. Musser, October 12, 1887.—Male, age thirty-six. Cause of death heart failure. Kidneys equally large. Dropsy. Heart weight 9½ ounces. Hypertrophy left side. Atheroma, aorta.

CASE XXII. Musser, January 23, 1888.—Male, age fifty. Cause of death uræmia. Kidneys equally large. Dropsy. Heart normal size. Hypertrophy left side. Fatty metamorphosis probably present. Dilatation right ventricle.

CASE XXIII. Walker, June 5, 1888.—Male, age fifty-two. Cause of death uræmia. Kidneys equally large. Heart slight hypertrophy. Hydrothorax.

CASE XXIV. Parish, June 22, 1888.—Female, age thirty-two. Cause of death septicæmia. Kidneys, weight right 11½ ounces, left 13 ounces. Miliary septic abscesses. Heart normal. Cystitis, septic abscess.

CASE XXV. Musser, August 7, 1888.—Male, age twenty-seven. Cause of death œdema of lungs. Kidneys each 18 ounces. Heart normal.

CASE XXVI. Dercum, March 3, 1889.—Female, age fifty-seven. Cause of death septicæmia from bedsores. Kidneys equally enlarged. Cysts. Heart normal size. Valvular disease, mitral. Atheroma of aorta and coronary. Hemorrhagic infarct of kidney.

CASE XXVII. Henry, June 15, 1889.—Female, age forty-five. Cause of death cerebellar glioma. Kidneys equally enlarged. Heart weight 12 ounces. Valvular disease, aortic, slight. Hypertrophy present.

Case XXVIII. Walker, April 20, 1889.—Male, age sixty. Cause of death pneumonia. Kidneys equally enlarged. Heart large. Valvular disease, aortic. Hypertrophy general. Dilatation general.

Case XXIX. Walker, July 11, 1889.—Male, age forty. Cause of death pericarditis. Kidneys equally enlarged. Heart large. Valvular disease, aortic and mitral. Hypertrophy general. Atheroma of aorta.

Case XXX. Tyson, July 23, 1889.—Female, age sixty. Cause of death uræmia. Kidneys each 6 ounces. Dropsy. Heart weight 22 ounces. Valvular disease, mitral. Hypertrophy left side. Dilatation left side. Atheroma of aorta.

Case XXXI. Wilson, July 24, 1889.—Male, age thirty-two. Cause of death uræmia. Kidneys each 6½ ounces. Heart weight 9 ounces. Lungs, chronic phthisis.

Case XXXII. Tyson, July 24, 1889.—Male, age thirty. Cause of death abdominal tuberculosis. Kidneys each 6½ ounces. Dropsy. Heart weight 9½ ounces. Hypertrophy slight, general. Miliary tuberculosis.

Case XXXIII. Martin, July 29, 1889.—Male, age forty-four. Cause of death apoplexy, meningitis. Kidneys each 7½ ounces. Heart weight 14 ounces. Valvular disease, aortic and mitral, acute. Hypertrophy general.

Case XXXIV. Henry, July 31, 1889.—Male, age forty-four. Cause of death acute phthisis. Kidneys each 10 ounces. Heart weight 10 ounces. Hypertrophy general. Slight general atheroma.

Case XXXV. Curtin, August 10, 1889.—Male, age seventeen. Cause of death typhoid fever. Kidneys each 5½ ounces. Heart weight 11 ounces. Hypertrophy general. Scrofulous.

Fatty and Contracted Kidney (35 Cases).

Appearance of the kidneys the same as in the first series.

Case I. Tyson, April 3, 1884.—Male, age fifty-five. Cause of death uræmia. Kidneys, weight right 4 ounces, left 4¾ ounces. Large cysts in both. Dropsy. Heart large. Hypertrophy general. Atheroma of aorta. Evidence of subacute attack.

Case II. Walker, May 3, 1884.—Female, age twenty-two. Cause of death uræmia. Kidneys, weight right 3 ounces, left 5½ ounces. Large cyst in left kidney. Heart normal.

Case III. Tyson, August 13, 1884.—Female, age forty. Cause of death pyelitis and inanition. Kidneys above normal. Heart normal. Complete prolapsus uteri. Pyelitis.

Case IV. Neff, August 25, 1884.—Male, age forty. Cause of death œdema of lungs. Kidneys, left very large, right smaller. Dropsy. Heart large. Valvular disease, mitral. Hypertrophy left ventricle. Atheroma of aorta.

Case V. Curtin, November 3, 1884.—Male, age thirty-eight. Cause of death heart failure. Kidneys equally enlarged. Heart large. Valvular disease, aortic thickening. Hypertrophy slight.

Case VI. Curtin, January 24, 1885.—Male, age forty-three. Cause of death pneumonia. Kidneys each 5½ ounces. Heart normal.

Case VII. Tyson, May 11, 1885.—Male, age sixty-eight. Cause of death pulmonary œdema. Kidneys, weight right 4 ounces, left 4½ ounces. Cysts in right kidney. Heart weight 16 ounces. Valvular disease, mitral. Hypertrophy general. Atheroma of aorta.

Case VIII. Wilson, May 19, 1885.—Male, age fifty-five. Cause of death pneumonia. Kidneys unequally enlarged. Heart normal.

Case IX. Bruen, August 8, 1885.—Female, age fifty. Cause of death pneumonia. Kidneys above normal, both equal. Cysts. Dropsy. Heart large. Hypertrophy slight, general. Dilatation. Atheroma of aorta.

Case X. Walker, September 17, 1885.—Male, age nineteen. Cause of death pulmonary œdema. Kidneys below normal, equal. Dropsy. Heart large. Hypertrophy slight. Dilatation right ventricle.

Case XI. White, November 2, 1885.—Male, age sixty-six. Cause of death septicæmia. Kidneys below normal. Heart normal. Operation for injury of foot.

Case XII. Wood, December 9, 1885.—Male, age fifty. Cause of death cerebral apoplexy. Kidneys below normal. Heart enlarged. Valvular disease, aortic valves thickened. Hypertrophy right ventricle slight. Atheroma of aorta and cerebral.

Case XIII. Walker, March 4, 1886.—Male, age forty-five. Cause of death heart failure. Kidneys below normal. Dropsy. Heart weight 28 ounces. Valvular disease, aortic, chiefly endocarditis. Hypertrophy general. Fatty metamorphosis. Dilatation general. Endocarditis and pericarditis, chronic.

Case XIV. Wood, April 8, 1886.—Female, age sixty-four. Cause of death uræmia. Kidneys below normal. Heart normal size. Fatty metamorphosis. Dilatation slight, general.

Case XV. Walker, June 19, 1886.—Male, age sixty-one. Cause of death œdema of lungs. Kidneys above normal. Heart enlarged. Fatty metamorphosis. Dilatation general and well marked. Thickness of left ventricle much diminished.

Case XVI. Osler, December 19, 1886.—Male, age fifty. Cause of death uræmia. Kidneys below normal in size. Cyst with calculus size of a large pea. Heart normal size. Hypertrophy slight.

CASE XVII. Janney, January 26, 1887.—Male, age thirty-four. Cause of death heart failure. Kidneys below normal. Heart weight 24 ounces. Hypertrophy general. Atheroma of aorta and renal.

CASE XVIII. Wilson, March 12, 1887.—Male, age fifty-two. Cause of death phthisis. Kidneys slightly below normal. Heart weight 9 ounces.

CASE XIX. Tyson, April 11, 1887.—Male, age seventy-two. Cause of death heart failure. Kidneys slightly below normal. Heart, old endocarditis. Fatty metamorphosis. Dilatation general.

CASE XX. Wilson, May 17, 1887.—Female, age thirty-eight. Cause of death uræmia. Kidneys, left small, right normal. Cyst. Heart small.

CASE XXI. Bruen, June 10, 1887.—Male, age seventy-four. Cause of death asthenia. Kidneys normal in size. Cyst. Dropsy. Heart large. Valvular disease, aortic and mitral. Hypertrophy general. Atheroma of aorta and coronary, complicated by gastric ulcer.

CASE XXII. Bruen, August 9, 1887.—Male, age fifty-four. Cause of death uræmia. Kidneys equally enlarged. Dropsy. Heart weight 14 ounces. Hypertrophy general. Dilatation general. Atheroma, aorta.

CASE XXIII. Musser, October 24, 1888.—Male, age thirty. Cause of death uræmia. Kidneys enlarged. Heart small.

CASE XXIV. Musser, October 29, 1888.—Male, age fifty-eight. Cause of death uræmia. Kidneys enlarged. Dropsy. Heart weight 20 ounces. Valvular disease, mitral. Hypertrophy general. Fatty metamorphosis. Dilatation left auricle. Atheroma, aorta.

CASE XXV. Musser, October 18, 1888.—Male, age sixty-five. Cause of death emphysema. Kidneys enlarged. Heart small. Valvular disease, aortic and mitral. Atheroma, aorta. Papillary muscles of left ventricle fibroid.

CASE XXVI. Curtin, December 13, 1888.—Female, age thirty-five. Cause of death uræmic convulsions. Kidneys enlarged, right larger. Cysts and dropsy. Heart medium size, mitral stenosis. Hypertrophy slight. Fatty metamorphosis. Dilatation general. History of rheumatism. Renal arteries thick and stiff.

CASE XXVII. Curtin, January 21, 1889.—Male, age sixty-nine. Cause of death alcoholism. Kidneys large. Heart large. Valvular disease, mitral. Hypertrophy general. Atheroma, aorta and coronary. Alcoholism. Chronic gastritis. Emphysema, hydrothorax.

CASE XXVIII. Osler, January 25, 1889.—Female, age seventy-five. Cause of death hydrothorax. Kidneys enlarged, left larger. Cysts and dropsy. Heart small. Valvular disease, mitral. Dilatation right side. Atheroma, aorta (dilated also).

CASE XXIX. Bruen, February 5, 1889.—Male, age forty-three. Cause of death uræmia. Kidneys enlarged. Heart large. Valvular disease, mitral stenosis. Hypertrophy left side. Dilatation left side.

CASE XXX. Bruen, March 3, 1889.—Female, age fifty. Cause of death heart failure. Kidneys about normal. Heart small. Valvular disease, mitral. Fatty metamorphosis. Dilatation general. Emphysema, hydrothorax.

CASE XXXI. Steinbach, June 10, 1889.—Female, age thirty-four. Cause of death embolic pneumonia. Kidneys equally enlarged. Heart normal in size. Valvular disease, aortic and mitral. Died after a surgical operation.

CASE XXXII. Walker, April 19, 1889.—Female, age eighty-seven. Cause of death senility. Kidneys normal size. Cyst and dropsy. Heart medium size. Valvular disease, mitral valve thickened. Dilatation general. Atheroma, aorta and coronaries. Senile change (?).

CASE XXXIII. Tyson, July 13, 1889.—Female, age thirty-eight. Cause of death carcinoma of pylorus. Kidneys normal size. Heart small. Fatty metamorphosis (?). Atheroma, coronary.

CASE XXXIV. Lloyd, August 18, 1889.—Male, age seventy-seven. Cause of death uræmia. Kidneys each 6 ounces. Dropsy. Heart weight 20 ounces. Hypertrophy general. Fatty metamorphosis. Dilatation general. Chronic obliterating pericarditis. Hydrothorax.

CASE XXXV. Curtin, August 12, 1889.—Male, age forty-nine. Cause of death phthisis. Kidneys equally enlarged. Dropsy. Heart large. Hypertrophy general.

RED GRANULAR KIDNEYS (75 CASES).

Appearance of the kidneys the same as in the first series.

CASE I. Wilson, May 24, 1884.—Male, age forty-six. Cause of death uræmia. Cysts not stated. Dropsy none. Heart weight 17 ounces. Valvular disease none. Hypertrophy simple. No other lesions.

CASE II. Bruen, May 28, 1884.—Male, age thirty-two. Cause of death uræmic coma. No cysts. No dropsy. Heart enlarged. Valvular disease none. Hypertrophy left side. Dilatation left ventricle. No other lesion.

CASE III. Walker, October 7, 1884.—Male, age forty-one. Cause of death tubercular peritonitis. No cysts. Ascites. Heart normal. No other lesion.

CASE IV. Walker, October 6, 1884.—Male, age forty-nine. Cause of death uræmia. No cysts. Dropsy present. Heart enlarged. Hypertrophy simple. No other lesion.

Case V. Tyson, August 28, 1884.—Female, age forty. Cause of death uræmia. No cysts. Dropsy present. Heart weight 28 ounces. Valvular disease, mitral stenosis. Hypertrophy general. Dilatation right ventricle. Atheroma, aorta. Much pericardial effusion.

Case VI. Bruen, October 6, 1884.—Male, age forty-eight. Cause of death uræmia. Cysts absent. No dropsy. Heart enlarged. Valvular disease, aortic. Hypertrophy left-sided. Dilatation general. Atheroma, aorta.

Case VII. Neff, October 9, 1884.—Male, age forty-nine. Cause of death œdema of lungs. No cyst. Dropsy present. Heart much enlarged. Valvular disease, aortic stenosis, and regurgitation. Hypertrophy left side. Dilatation left ventricle. Atheroma, aorta. Dilatation of arch of aorta.

Case VIII. Bruen, November 15, 1884.—Male, age sixty-one. Cause of death uræmia. Cysts present. Dropsy present. Heart much enlarged. Valvular disease none. Hypertrophy general. Left ventricle one inch thick. Dilatation general. Unilateral pleural effusion.

Case IX. Porter, December 16, 1884.—Male, age twenty-two. Cause of death phthisis. No cysts. No dropsy. Heart small. No other lesion. Kidney somewhat translucent.

Case X. Curtin, December 18, 1884.—Male, age forty-three. Cause of death uræmia. No cysts. Dropsy present. Heart large. Hypertrophy general. Dilatation both sides. No other lesion. History of syphilis.

Case XI. Mills, January 15, 1885.—Male, age fifty-two. Cause of death uræmic coma. No cysts. No dropsy. Heart normal. No other lesion.

Case XII. Wood, February 18, 1885.—Female, age twenty-seven. Cause of death congestion of lungs. No cyst. No dropsy. Heart normal. No other lesion. Epileptic.

Case XIII. Wood, February 24, 1885.—Male, age seventy-five. Cause of death œdema of lungs. Cysts and dropsy present. Heart large. Valvular disease, mitral. Hypertrophy general. Dilatation general. Atheroma, aorta and coronary. Chronic endocarditis.

Case XIV. Wilson, April 11, 1885.—Female, age twenty-eight. Cause of death pneumonia. Cysts none. Dropsy present. Heart large. Valvular disease, mitral. Hypertrophy general. Dilatation general. Atheroma, aorta. Pericarditis adhesive and with calcification.

Case XV. Bruen, May 17, 1885.—Male, age fifty. Cause of death pneumonia. Cysts present Dropsy present. Heart twice normal size. Valvular disease, mitral. Hypertrophy general. Muscles flabby. Dilatation general. Chronic endocarditis.

Case XVI. Bruen, May 2, 1885.—Male, age forty-seven. Cause of death œdema of lungs. No cysts nor dropsy. Heart normal size. Valvular disease, aortic. Hypertrophy none. Fatty metamorphosis present. Dilatation none. Atheroma, aorta and coronary.

Case XVII. Bruen, June 9, 1885.—Male, age seventy. Cause of death apoplexy. Cysts present. Dropsy none. Heart normal. Fatty metamorphosis principally on left side. Dilatation general. Atheroma: coronary, cerebral, and aorta. Chronic pleurisy.

Case XVIII. Curtin, July 12, 1885.—Female, age forty-four. Cause of death asthenia. No cyst. No dropsy. Heart normal size. Valvular disease, slight, mitral. Fatty metamorphosis present. Dilatation.

Case XIX. Walker, September 12, 1885.—Male, age seventy. Cause of death meningitis. No dropsy. No cysts. Heart enlarged. Valvular disease, mitral. Fatty metamorphosis present. Dilatation general. Atheroma present, especially coronary.

Case XX. Curtin, October 27, 1885.—Female, age forty. Cause of death exhaustion due to cystitis. No cysts nor dropsy. Heart normal size, Valvular disease none. Hypertrophy none. Fatty metamorphosis present. Muscles flabby and tough. Cystitis and renal calculi.

Case XXI. Curtin, November 21, 1885.—Male, age seventy-three. Cause of death œdema of lungs. No cysts. Dropsy present. Heart large. Valvular disease, aortic and mitral. Hypertrophy left side. Fatty metamorphosis none. No atheroma. Acute pericarditis. History of syphilis.

Case XXII. Bruen, June 29, 1886.—Female, age seventy. Cause of death pericarditis. No cyst. No dropsy. Heart normal. Valvular disease, aortic valves thickened. Hypertrophy none. Fatty metamorphosis present. No atheroma. Mediastinal sarcoma. Pericarditis.

Case XXIII. Neff, August 29, 1886.—Male, age eighty-five. Cause of death uræmia. Cysts present. No dropsy. Heart large. Valvular disease, aortic calcification. Hypertrophy general. Atheroma, aorta.

Case XXIV. Neff, October 13, 1886.—Female, age fifty-seven. Cause of death uræmia. Cysts none. Dropsy none. Heart normal size. Valvular disease, mitral. Hypertrophy none. Fatty metamorphosis present. Hemorrhagic infarct in kidney.

Case XXV. Musser, August 31, 1886.—Female, age thirty-six. Cause of death heart failure. No cysts. Dropsy present. Heart weight 17 ounces. Valvular disease, mitral. Hypertrophy general. Atheroma, coronaries.

Case XXVI. Mills, October 14, 1886.—Female, age seventy-eight. Cause of death sclerosis of brain. Cysts present. No dropsy. Heart enlarged. Valvular disease none. Hypertrophy general.

Case XXVII. Mills, January 16, 1887.—Female, age sixty-five. Cause of death uræmia. No cysts. No dropsy. Heart normal size. Valvular disease none. Hypertrophy none.

Case XXVIII. Walker, February 18, 1887.—Male, age fifty-eight. Cause of death uræmia. No cysts. No dropsy. Heart enlarged. Valvular disease none. Hypertrophy left side. Dilatation right ventricle. Atheroma, aorta.

CASE XXIX. Wilson, February 26, 1887.—Male, age fifty-one. Cause of death œdema of lungs. Cysts present. No dropsy. Heart weight 18 ounces. Valvular disease none. Hypertrophy left side. Dilatation left ventricle. Atheroma, aorta.

CASE XXX. Tyson, April 11, 1887.—Female, age seventy. Cause of death uræmia. No cysts. No dropsy. Heart weight 14 ounces. Valvular disease none. Hypertrophy general. Arterial change, aortic. History of syphilis.

CASE XXXI. Wilson, May 3, 1887.—Male, age fifty-two. Cause of death œdema of brain. No cyst. Dropsy present. Heart normal size. Valvular disease, aortic. Fatty metamorphosis present. Arterial changes, coronary and aorta.

CASE XXXII. Tyson, June 20, 1887.—Female, age fifty. Cause of death apoplexy. No cyst. No dropsy. Heart enlarged. Valvular disease, mitral. Hypertrophy general. Arterial changes, aorta and cerebral. Heart had moderator band.

CASE XXXIII. Ransley, June 27, 1887.—Female, age forty-one. Cause of death heart failure. Cysts present. Dropsy absent. Heart small. Valvular disease, mitral. Fatty metamorphosis present. Dilatation present.

CASE XXXIV. Tyson, August 20, 1887.—Male, age sixty-five. Cause of death uræmia. Cysts present. Dropsy present. Heart small. Valvular disease, aortic and mitral. Fatty metamorphosis present. Dilatation present. Arterial changes, aorta and coronary.

CASE XXXV. Mills, September 1, 1887.—Female, age ninety-six. Cause of death senility. Cysts present. Dropsy absent. Heart small. Valvular disease, aortic and mitral. Fatty metamorphosis present. Arterial change, aorta.

CASE XXXVI. Dercum, October 22, 1887.—Male, age eighty-two. Cause of death uræmia. Cysts absent. Dropsy absent. Heart normal size. Fatty metamorphosis present. Arterial change, aorta and coronary.

CASE XXXVII. Dercum, November 19, 1887.—Male, age fifty-four. Cause of death œdema of brain. Cysts and dropsy both absent. Heart enlarged. Valvular disease, mitral. Hypertrophy left side.

CASE XXXVIII. Dercum, November 27, 1887.—Female, age eighty. Cause of death œdema of brain. Cysts absent. Dropsy present. Heart enlarged. Valvular disease, mitral and aortic. Hypertrophy general. Arterial changes, aorta. Aneurism of abdominal aorta.

CASE XXXIX. Parish, December 25, 1887.—Female, age forty. Death sudden. Cysts and dropsy both absent. Heart small. Fatty metamorphosis present. Dilatation present. History of syphilis.

CASE XL. Osler, January 25, 1888.—Female, age fifty-six. Cause of death uræmia. Cysts present. Dropsy absent. Heart large. Valvular disease, mitral. Hypertrophy left side. Pleural effusion.

CASE XLI. Henry, March 30, 1888.—Female, age seventy. Cause of death heart failure. Cysts none. Dropsy none. Heart weight 18 ounces. Valvular disease, aortic and mitral. Hypertrophy general. Arterial changes, aorta and coronary. Patulous foramen ovale and endocarditis.

CASE XLII. Walker, April 28, 1888.—Male, age sixty-eight. Death sudden. Cysts present. Dropsy present. Heart weight 31 ounces. Valvular disease, aortic. Hypertrophy left side one and a quarter inch in front. Chronic adhesive pericarditis.

CASE XLIII. Walker, May 4, 1888.—Female, age sixty-eight. Cause of death uræmia. Cysts absent. Dropsy present. Heart weight 14 ounces. Hypertrophy right side. Arterial change, aorta and coronary.

CASE XLIV. Dercum, August 12, 1888.—Male, age fifty-two. Cause of death senile gangrene. Cysts absent. Dropsy absent. Heart normal size. Valvular disease, aortic and mitral. Hypertrophy left side. Arterial changes, aortic and coronary. Heart firmly contracted.

CASE XLV. Deaver, August 21, 1888.—Female, age forty-one. Cause of death uræmia. Cysts none. Dropsy none. Heart normal size.

CASE XLVI. Musser, September 21, 1888.—Female, age forty-six. Cause of death uræmia. Cysts present. Dropsy absent. Heart normal size. Valvular disease, mitral. Hypertrophy slight and general. Arterial changes, coronary.

CASE XLVII. Osler, September 10, 1888.—Male, age forty-seven. Cause of death uræmia. No cysts nor dropsy. Heart large. Hypertrophy present, right ventricle larger than left. Arterial changes, aorta and coronary. Small renal arteries greatly enlarged.

CASE XLVIII. Mills, October 9, 1888.—Male, age sixty. Cause of death uræmia. Cysts present. Dropsy absent. Heart large. Valvular disease, mitral and aortic. Hypertrophy left side. Dilatation left side.

CASE XLIX. Dercum, October 12, 1888.—Male, sixty-three. Cause of death pneumonia or uræmia. Cysts present in both. Dropsy absent. Heart normal. Valvular disease, aortic, chronic. Fatty metamorphosis present. Atheroma, aorta. Pneumonia.

CASE L. Musser, October, 12, 1888.—Female, age ninety-one. Cause of death abdominal aneurism. Cysts present in both kidneys. Dropsy absent. Heart large. Valvular disease, aortic, chronic. Hypertrophy left side. Atheroma, aortic and general. Large abdominal aneurism. Renal arteries also atheromatous, papillary muscles fibroid change.

CASE LI. Mills, October 15, 1888.—Male, age sixty-five. Cause of death pachymeningitis hemorrhagica. Cyst present in both kidneys. Dropsy absent. Heart large. Valvular disease, mitral, chronic. Hypertrophy general. Atheroma, aorta and coronary.

CASE LII. Bruen, November 20, 1888.—Male, age seventy-eight. Cause of death pulmonary œdema. Cysts present. Dropsy present. Heart normal size. Valvular disease, aortic regurgitation. Atheroma: aorta, internal carotid, basilar, and coronary. Aortic valves fenestrated and hydronephrosis.

CASE LIII. Dercum, October, 20, 1888.—Female, age seventy-six. Cause of death apoplexy. No cysts. No dropsy. Heart small. Valvular disease, aortic. Fatty metamorphosis present. Atheroma, aorta and arteries of brain.

CASE LIV. Curtin, October 31, 1888.—Female, age sixty-five. Cause of death pulmonary œdema. Cysts present. Dropsy absent. Heart enlarged. Valvular disease, mitral. Hypertrophy left side. Dilatation right ventricle. Atheroma, aorta.

CASE LV. Musser, November 21, 1888.—Female, age sixty-eight. Cause of death uræmia. Cysts and dropsy both absent. Heart large. Valvular disease, mitral. Hypertrophy left side. Atheroma, aorta and coronary.

CASE LVI. Dercum, December 1, 1888.—Female, age seventy-three. Cause of death pneumonia. Cysts present. Dropsy present. Heart large. Hypertrophy left side. Atheroma, aorta and cerebral arteries. Cirrhosis of liver.

CASE LVII. Dercum, December 30, 1888.—Male, age fifty-six. Cause of death uræmic convulsion. Cysts present. Dropsy present. Heart large. Valvular disease, mitral. Hypertrophy general. Fatty metamorphosis present. Dilatation general. Atheroma, aorta and cerebral.

CASE LVIII. Mills, December 18, 1886.—Female, age seventy-two. Cause of death meningitis. Cyst absent. Dropsy absent. Heart normal size. Valvular disease, aortic and mitral. Hypertrophy none. Fatty metamorphosis. Dilatation marked.

CASE LIX. Musser, December 29, 1886.—Female, age fifty-five. Cause of death pneumonia and uræmia. Cyst and dropsy absent. Heart weight 11 ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis none. Dilatation right ventricle. Atheroma, aorta and coronaries.

CASE LX. Neff, December 30, 1886.—Female, age thirty-five, highly anæmic. Cause of death uræmia. No cysts. No dropsy. Heart normal size. No other lesion. History of malaria.

CASE LXI. Henry, February 20, 1889.—Male, age forty-eight. Cause of death uræmia and pneumonia. Heart weight 10 ounces. Valvular disease and dropsy none. Hypertrophy slight.

CASE LXII. Montgomery, March 5, 1889.—Female, age sixty. Cause of death uræmia. Heart large. Valvular disease none. Hypertrophy left-sided. Dilatation right-sided. Ovariotomy.

CASE LXIII. Walker, March 29, 1889.—Female, age ninety. Cause of death heart failure. Many cysts. Dropsy present. Heart large. Valvular disease, aortic and mitral. Fatty metamorphosis present. Dilatation general. Atheroma, aorta and coronaries.

CASE LXIV. Tyson, April 19, 1889.—Male, age sixty. Cause of death pleural effusion. Dropsy present. Heart normal size. Displaced by right-side pleural effusion.

CASE LXV. Walker, April 18, 1889.—Female, age seventy-nine. Cause of death phthisis. Heart normal. Valvular disease, aortic. Hypertrophy slight. Dilatation slight. Heart and kidney changes may be senile.

CASE LXVI. Wilson, May 3, 1889.—Male, age sixty-three. Cause of death heart failure. Cysts present. Dropsy absent. Heart weight 20 ounces. Valvular disease, aortic. Hypertrophy left-sided one inch. Fatty metamorphosis none. Dilatation general. Atheroma, aorta and cerebral.

CASE LXVII. Henry, June 11, 1889.—Male, seventy-six. Cause of death emphysema. Dropsy present Heart weight 18 ounces. Valvular disease, slight thickening. Hypertrophy general.

CASE LXVIII. Henry, June 15, 1889.—Female, age eighty-four. Cause of death senility. Cysts present. Dropsy absent Heart weight 9 ounces. Valvular disease none. Hypertrophy slight. Atheroma, aorta and coronaries.

CASE LXIX. Lloyd, June 26, 1889.—Male, age sixty-nine. Death sudden. Heart weight 24 ounces. Valvular disease none. Hypertrophy general. Atheroma, basilar arteries.

CASE LXX. Henry, July 11, 1889.—Male, age fifty-five. Cause of death uræmia. Heart very large. Valvular disease none. Hypertrophy left side.

CASE LXXI. Walker, July 15, 1889.—Female, age seventy-one. Cause of death phthisis. Cysts present. Heart small. Valvular disease, aortic. Atheroma, coronaries.

CASE LXXII. Walker, July 17, 1889.—Female, age eighty. Cause of death uræmia. Cysts none. Dropsy present. Heart weight 22 ounces. Valvular disease, mitral insufficiency. Hypertrophy general, left ventricular one and a quarter inch. right three-quarters of an inch. Atheroma none.

CASE LXXIII. Lloyd, July 22, 1889.—Male, age forty-nine. Cause of death apoplexy. Heart weight 20 ounces. Valvular disease, aortic. Hypertrophy left side. Dilatation left side.

CASE LXXIV. Dercum, July 27, 1889.—Male, age forty-nine. Cause of death meningitis. Heart weight 11 ounces. Valvular disease, mitral. Hypertrophy slight. Atheroma, root of aorta. Contraction of kidney, slight, cyanotic.

CASE LXXV. Dercum, August 1, 1889.—Female, age fifty-three. Cause of death cerebral apoplexy. Heart normal size. Valvular disease, mitral, slight. Atheroma: aorta, coronaries, and cerebral.